



Dear Prospective Customer,

For race engineers, crew chiefs, suspension engineers, manufacturers and OEM technicians who need to quickly, accurately and reliably characterize dampers and springs, **Roehrig Engineering, Inc.'s (REI)** family of load frames, linear test systems, damper dynamometers and spring rating equipment is the industry's system of choice when accuracy, quality and ease of use are demanded. With over 1100 systems installed and operating worldwide since 1990, REI continues to lead the damper dynamometer industry with technical innovations and features aimed at simplifying your testing and analysis.

REI has a wide range of products to fit your testing needs, ranging from variable wave form generators to simple to use mechanical systems.

REI produces several levels of Electro-Magnetic Actuated Test Systems capable of meeting your variable wave form needs. They are able to run any user defined wave form with 1.0 micron encoder accuracy.

- The EMA- Series - **EMA-2K** and **4K**, stand alone test systems
- The EMA-LT Series - **LT-2K** and **LT-4K**, factory in-line quality control checking systems

REI currently offers 6 models of crank type damper dynamometers; each with features, capabilities and pricing designed to meet your testing and budgetary needs.

- The 2, 3 and 5 Horsepower Variable Speed models - **2VS**, **3VS** and **5VS**
- The 10 and 20 Horsepower Variable Speed models - **10VS** and **20VS**
- The 30 Horsepower Variable Speed model - **30VS**

Maximum damper velocities, forces and strokes are directly related to the motor, gearing and drive system. Customer specific strokes, damper lengths, damper velocities and force capacities are available upon request. **REI** would be happy to quote prices for custom features and software modifications.

REI also offers **Spring and Torsion Bar Raters** that can work in conjunction with any of our damper dynamometers as well as fully functioning stand alone units.

- The Roller Screw Actuated Spring Rater - **RoSA-11D3 (VSR)**, **16D6**, **40D10** and **80D10**
- The Stand Alone Spring Rater (Self contained unit) – **SASR**
- The Add-on Spring Rater (Used with your existing dyno) – **AOSR**
- The Torsion Bar Rater - **STBR**

Enclosed you will find more detailed product information and technical specifications for our complete product line as well as pricing for all of our products and accessories. If you have any questions or comments, please do not hesitate to contact us.

Sincerely,

Scott E. Treichler



General Product Information and Policies

REI General Terms and Conditions

REI requires a 50% down payment to start the build of your dynamometer system. The remaining balance is due upon delivery of your unit. Unit pricing is F.O.B. Lexington, North Carolina. North Carolina State law requires that we charge applicable sales tax on all systems delivered to a North Carolina address.

REI Product Warranty

All REI systems come with a one-year warranty on parts and labor. Computers supplied by REI are warranted by the original manufacturer. Customer supplied computers are not covered by REI warranty.

Delivery and Shipping

Standard dynamometer systems (with the exception of the **EMA's** and **30VS**) are typically delivered within 4 to 6 weeks from receipt of the 50% down payment. Shipping arrangements are up to the customer however, REI will be happy to assist in shipping arrangements. Shipping and crating costs are not included in the base price. Please inquire about our shipping options, if needed.

Installation and Operational Training

Pricing includes one day of on-site dynamometer installation and training in the set-up and operation of the damper dynamometer (except the 2VS). Travel cost to your facility for installation and training is not included in the dynamometer pricing. This will be invoiced separately upon completion of the training.

Preventative Maintenance and Calibration

From annual re-calibration (NIST) of your system to monthly preventative maintenance visits, REI has a service and maintenance program to meet your needs. Please call for specific pricing and details.

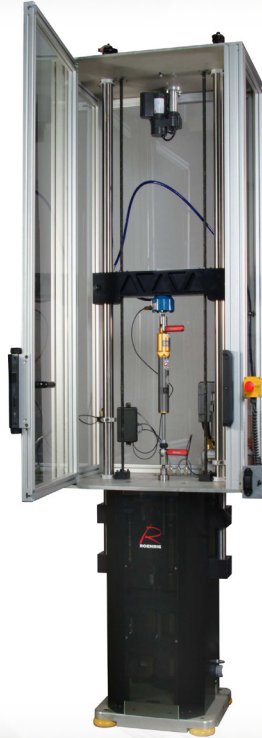
Computer Requirements

The information below provides the minimum customer-supplied computer system requirements for operation of REI damper dynamometers and spring raters. Standard desktop or laptop computers can be used for dynamometer operation.

- Intel chip
- 512 MB RAM Memory
- CD-R ROM Drive
- 1 USB port, 1 parallel port, 1 serial port or 3 USB ports
- 15" SVGA Monitor
- Windows™ XP or VISTA



2K EMA

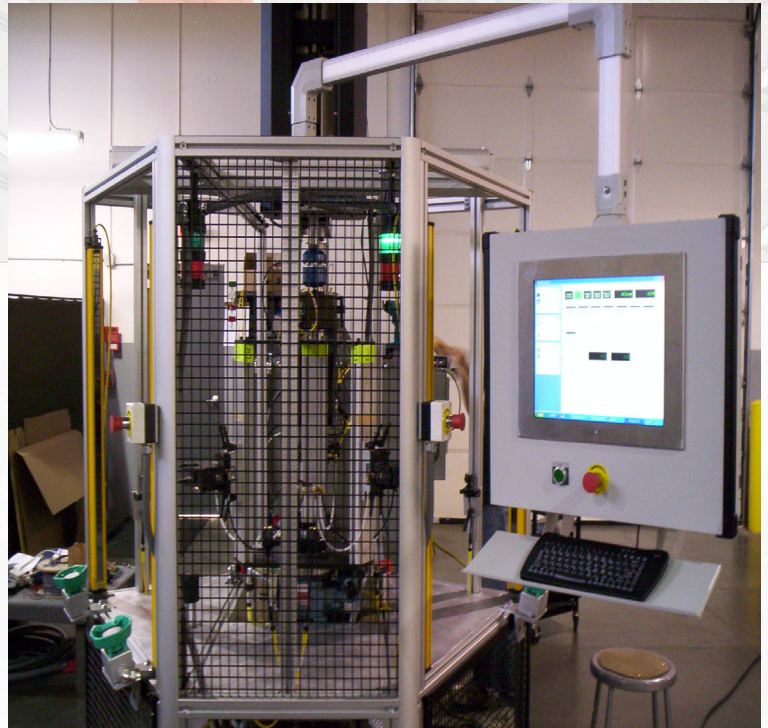


4K EMA w/ CE Cage
Actuated Crossbar
Self-Clamping Crossbar



4K EMA

ROEHRIG ENGINEERING INC. LINE OF ELECTRO MAGNETIC ACTUATORS



LEMA: IN-LINE QUALITY TESTING FACTORY SYSTEMS

100 Lexington Parkway

Lexington NC 27295

US PRICING

Electro-Magnetic Actuated Test Systems:

EMA 2K (computer included)

Call

EEMA 2K (includes 380VAC to 220VAC transformer)

Call

- * 2,100 lb / 9kN Force Capability
- * Up to 25hp Motor Output when wired to 3-phase, 220 VAC.

EMA 4K (computer included)

Call

EEMA 4K (includes 380VAC to 220VAC transformer)

Call

- * 4,100 lb / 18 kN Force Capability
- * Up to 55hp Motor Output when wired to 3-phase, 220 VAC.

Features common to all EMA Systems:

- * Drive position accuracy of 1 micron.
- * Usable stroke range from 0.01-7.0 inches (0.25-177.0 mm).
- * Excellent Frequency response up to 80 Hz.
- * 16-bit A/D data acquisition system.
- * 16-bit motion control card.
- * Utilizes high-current, highly reliable servo amplifiers.
- * Bright Nickel (rustless) Columns with 31" / 800mm eye to eye test area.
- * Non-contacting Infra Red style temperature transducer.
- * Fully computer controlled w/ Shock6 Test Control and Damper Analysis.
- * Complete turnkey system includes desktop PC.

Available Options on all EMA Systems:

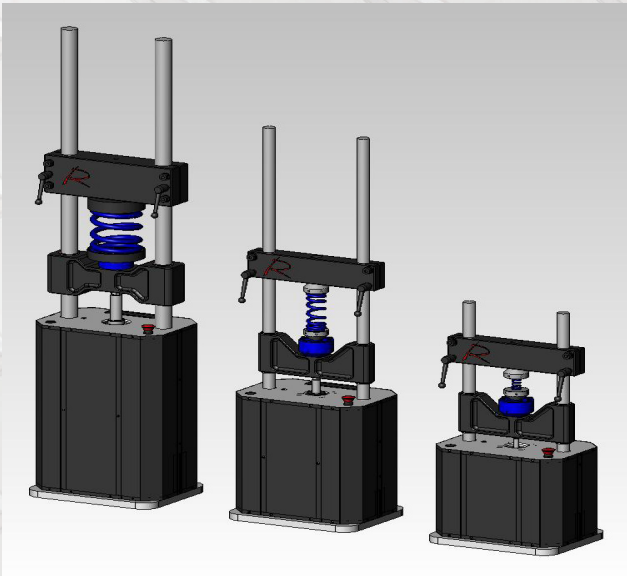
- * CE Compliant Cage
- * Motorized Crossbar
- * Self Clamping Crossbar
- * Custom Clevises / Grippers

EMA-LT (computer included)

Call

Due to the nature of custom test stands and factory requirements, pricing will have to be developed by REI for the customer. Please contact sales and support for your custom quote.

ROEHRIG ENGINEERING INC.'s ROLLER SCREW ACTUATED TEST FRAMES RoSA



VSR-11D3

1,100 lb / 5 kN - 3 in / 76 mm



ASR-16D6

1,600 lb / 7 kN - 6 in / 150 mm



ASR-80D10

8,000 lb / 35 kN - 10 in / 250 mm

US PRICING

Advanced Spring Raters: RoSA

VSR-11D3 (computer included)

Call

- * Up to 7 inch (178mm) standard test opening.
- * 1100 lb (5kN) load range with standard load cell.
- * 3 inch (76mm) dynamic stroke with 0.13 micron resolution.

ASR-16D6 (computer included)

Call

- * Up to 15 inch (380mm) standard test opening.
- * 1600 lb (7kN) load range with standard load cell.
- * 6 inch (150mm) dynamic stroke with 0.13 micron resolution.

ASR-40D10 (computer included)

Call

- * Up to 15 inch (380mm) standard test opening.
- * 4000 lb (18kN) load range with standard load cell.
- * 10 inch (250mm) dynamic stroke with 0.13 micron resolution.

ASR-80D10 (computer included)

Call

- * Up to 20 inch (500 mm) standard test opening.
- * 8,000 lb (36 kN) load range with standard load cell.
- * 10 inch (250 mm) dynamic stroke with 0.13 micron resolution.

COMMON FEATURES:

- * User-definable preload and test range in displacement and/or force.
- * Ability to overlay plots, including:
 - Displacement vs. Spring Rate
 - Force vs. Spring Rate
 - Displacement vs. Force.
- * Output Results include tabular report format, along with statistical analysis of batch results, Coil Bind, Free Length, as well as Spring Rate throughout entire spring travel.



2 VS
2HP / 1 and 2" Stroke
ENTRY LEVEL



3 VS - 5 VS
3 or 5HP, 4 Strokes
NASCAR, CART, IRL



10 VS - 20 VS
10 or 20 HP, up to 150mm
MANUFACTURE

**ROEHRIG ENGINEERING INC. LINE OF MECHANICAL
DAMPER DYNAMOMETERS, SPRING RATERS
AND TORSION BAR RATERS**



SASC



ADD ON



**TORSION BAR
RATER**

US PRICING

CRANK TYPE DAMPER DYNAMOMETER:

SEE INDIVIDUAL UNIT SHEETS FOR COMPLETE SPECS AND OPTIONS

2VS

\$8,000.00

- * 2 Hp Motor (220VAC)
- * 1" / 2" Strokes

3VS

Call

- * 3 Hp Motor (220VAC or 380VAC)
- * 4 Strokes: 2.0", 1.5", 1.0", 0.5" or 50mm, 40mm, 25mm, 15mm

5VS

Call

- * 5 Hp Motor (220VAC or 380VAC)
- * 4 Strokes: 2.0", 1.5", 1.0", 0.5" or 50mm, 40mm, 25mm, 15mm

10VS

Call

- * 10 Hp Motor (220VAC or 380VAC)
- * 6 Strokes: Standard or Metric, up to 100mm w/ Optional 150mm

20VS

Call

- * 20 Hp Motor 380-440 VAC.
- * 7 Strokes: Standard or Metric, up to 150mm

30VS

Call

- * 30 Hp Motor 380-440 VAC
- * Up to 8 Customer Defined Stroke Settings from 0.25" to 6.0" or 5 to 150 mm

ALL SYSTEMS INCLUDE:

- * Zero lash belt drive.
- * Precision scotch yoke/wear plate system generating a high accuracy sine wave.
- * Variable speed, computer controlled testing with Roehrig Engineering's Shock Software
- * 16 Bit USB 8 Channel Data Acquisition
- * Non-contacting IR Temperature Sensor / Nickel Columns (option on 2VS)

MECHANICAL SPRING RATERS:

Stand Alone - SASR

Call

Add-On Spring Rater - AOSR-2VS

Call

3VS-30VS

Call

Raters come with manual pump, electric and air over hydraulic optional

Hydraulic Torsion Bar Rater:

STBR

Call

CUSTOMER LIST

... INDUSTRY ...

How can Roehrig Engineering claim to be the world leader in damper dynamometers?

No other company in the history of the industry has sold to as wide a customer base as Roehrig Engineering. Included among our customers is nearly every shock and vehicle manufacturer in the world. We also support all the top racing teams in NASCAR, CART, Sports Cars, and the IRL, not to mention a world champion F1 team. Not convinced? Take a look at a breif list of customers, and see for yourself.

MANUFACTURING

ACTIVA TECHNOLOGY AER MANUFACTURING AFCO AMERICAN MADE MOTORCYCLES AMERICAN SHOWA APITECH ARB CORPORATION ARVIN RIDE CONTROL AUTOLIGN, LTD. NZ BILSTEIN COFAP DAEWOO DELCO DELPHI CHASSIS EDELBROCK	EIBACH SPRINGS EUROFAC FORD RIDE DEVELOPMENT GABRIEL RIDE CONTROL GM ELECTRIC VEHICLE GM SYSTEMS ENGINEERING HKS HONDA OF AMERICA MANUFACTURING JAPANESE SHOWA JRZ SUSPENSION KONI SHOCKS KYB INDUSTRIES LANDRUM SPRING SERVICE LORD CORPORATION LOTUS	MIDORI NISHIKI OHLINS PENSKE RACING SHOCKS PILOT PRECISION DAMPERS PORSCHE PROGRESSIVE SUSPENSION PRO SHOCKS QA-1 RICOR SACHS AUTOMOTIVE TOKICO WEISS SpA WP COMPETITION SUSPENSION YAMAHA
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ENGINEERING

AMG ADVANCED RACING SUSPENSIONS AMERICAN HONDA AUTO PRO BRUCES SPEED SHOP BSR CHASSIS DYNAMICS CHASSISWORKS COLE PERFORMANCE COMPONENT REPAIR SERVICES CRAIG PERKINS RACING DAUGHTON'S AUTO SERVICE DILLON AUTO PARTS DINAN BMW DON GLO AUTO SERVICE CENTER GENERAL MOTOR VENTURES GM DRAG RACING GP SUSPENSION	GRIZCO GROUND CONTROL HARLEY DAVIDSON HELICOPTER ACCESSORY SERVICE EAST HOWE ENGINEERING IROC KAZ TECHNOLOGIES LAWRENCE ENGINEERING LOTUS ENGINEERING MAZDASPEED MOTON MOTORSPORTS SPARES MSPORT MUSCLE PARTS OPEL PETTERSON PRO SUSPENSION POP YOSHIMURA	POWERDOWN PRATT & MILLER PRODRIVE RE SUSPENSION RACEWERX RAPID DESIGN SERVICE RENAULT F1 ROUSH INDUSTRIES SOUTHERN PRIDE TRUCKING SUBURBAN EQUIPMENT TOYOTA F1 TRANSACT RACE SERVICES TUFF RACING PRODUCTS UNIV. OF MARYLAND UNIV. OF N. CAROLINA, CHARLOTTE YAMACO YOSHIMURA ZAKSPEED
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COUNTRIES

ARGENTINA BELARUS CANADA DENMARK FRANCE ISREAL JORDAN NEW ZEALAND SWEDEN TURKEY	AUSTRALIA BELGIUM CHINA ENGLAND (UK) GERMANY ITALY MEXICO SOUTH AFRICA SWITZERLAND	AUSTRIA BRAZIL CZECH REPUBLIC FINLAND GREECE JAPAN NETHERLANDS SPAIN THAILAND
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CUSTOMER LIST

... RACING ...

NASCAR Nextel Cup

BILL DAVIS RACING BAM MOTORSPORTS DALE EARNHARDT, INC. EVERNHAM MOTORSPORTS HAAS CNC RACING HENDRICK MOTORSPORTS JOE GIBBS RACING	GINN MOTORSPORTS MORGAN - McCLURE PENSKE RACING SOUTH PETTY ENTERPRISES PHOENIX RACING PPI RICHARD CHILDRESS RACING	ROBERT YATES RACING ROUSH RACING CHIP GANASSI RACING WOOD BROTHERS TEAM GORDON MOTORSPORTS MICHAEL WALTRIP RED BULL
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OPEN WHEEL Series

A J FOYT RACING ALL AMERICAN RACERS ANDERSON -WALKO ARCIERO WELLS CHIP GANASSI RACING COLE PERFORMANCE CUNNINGHAM RACING INDY REGENCY RACING KELLY RACING McCORMACK MOTORSPORTS	MENARD RACING MOTORSPORT SPARES NIENHOUSE MOTORSPORTS PAGAN RACING PANTHER RACING PATRICK RACING PAYTON COYNE RACING PLAYERS FORSYTHE RACING PROJECT INDY RACER'S EDGE MOTORSPORTS	RILEY & SCOTT SINDEN RACING STAR RACECARS TEAM CHEEVER TEAM GORDON TEAM GREEN TEAM TOMLIN TECH MACHINE RACING WALKER MOTORSPORTS WORLD SPEED MOTORSPORTS
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NASCAR Busch Series

AKINS SUTTON MOTORSPORTS ALLCAR MOTORSPORTS AMICK MOTORSPORTS ASHTON LEWIS MOTORSPORTS BACE MOTORSPORTS BILL DAVIS RACING BLUE RIDGE MOTORSPORTS BOBBY HILLIN RACING BREWCO MOTORSPORTS BUCKSHOT RACING CLR RACING DALE EARNHARDT, INC. DALE JARRETT RACING DIAMOND RIDGE RACING	DOUG TAYLOR MOTORSPORTS EXCEL MOTORSPORTS EXPRESS MOTORSPORTS GORDON-EVERNHAM MOTORSPORTS GTS MOTORSPORTS HANK PARKER RACING HERZOG MOTORSPORTS J & J RACING JIMMY SPENSER RACING JOE GIBBS RACING KEL RACING L J RACING LABONTE RACING, INC. LIBERTY RACING	MARTIN / WEISS MOTORSPORTS MICHAEL WALTRIP, INC. NEMCO MOTORSPORTS PARKER RACING PHIL PARSONS RACING PHOENIX RACING PROGRESSIVE MOTORSPORTS REISER ENTERPRISES ROBBY GORDON MOTORSPORTS SCORE MOTORSPORTS SHOEMAKER RACING SUPER SPORTS RACING TEAM 34 TEAM RENSI
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NASCAR Craftsman Truck Series

ADDINGTON MOTORSPORTS CHESROWN RACING DALE EARNHARDT, INC. HENDRICK MOTORSPORTS IMPACT MOTORSPORTS IRVAN-SIMO RACING IWX	JETSTAR K-AUTOMOTIVE KEN SHRADER RACING L & R MOTORSPORTS LIBERTY RACING PHELOM MOTORSPORTS RICHARD CHILDRESS RACING	RICK CRAWFORD RACING ROUSH RACING SPEARS MFG TKO MOTORSPORTS ULTRA WHEELS
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Miscellaneous Racing

BRIX MOTORSPORTS CHESSON RACING CROWN DISPOSAL DERHAAG MOTORSPORTS DOLLAR MORGAN RACING FENLEY MOTORSPORTS GERHART RACING	HOWE ENGINEERING JANSPEED MOTORSPORTS MCR MIKE SKINNER RACING PETER CHESSON RACING PTG QUALITY MOTORSPORTS	REMAX MOTORSPORTS RENAULT DEALER RACING RICK JARZOMBECK RICKY SANDERS RACING ROCKETSPTS SELMA SHELL RACING STANTON RACING
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Computer Controlled Electro-Mechanical Damper Dynamometer

Entry Level **2VS**

\$8,000



The 2VS is mechanically identical to our most popular model, the 5VS. We build the 2VS with a 2 Hp motor instead of the 5 Hp of the 5VS allowing us to provide the fully computer controlled, variable motor speed feature at a lower cost. The 2VS is capable of testing at two specific strokes: 1.0 and 2.0 inches. **The SHOCK6™ Test Control and Damper Analysis** software enables you to perform static and dynamic gas tests, temperature (with optional sensor) or time based warming of a damper, as well as stop at bottom dead center. A standard 2VS has force capacity up to +/- 1250 lbs. at 10 ips and damper velocities up to +/- 20 inches per second with a 2-inch stroke.

Typical Motorsports Application

The 2VS generates valuable information for teams preparing sprint cars, small-bore open-wheel cars, late-model stock cars, or any racecar mounting lower-force dampers. Completely portable, the 2VS is well suited for use at a race event or test session, where building and testing dampers is of primary importance to a race team engineer or crew chief.

2VS OPTION PACKAGE: \$500.00

*NICKEL COLUMNS, IR TEMPERATURE SENSOR

Standard Features for the 2VS Damper Dynamometer System:

- 1,250 lbs. peak force at 10 inches per second
- Variable speed up to 20 inches per second
- 2 Hp Motor, 220V, 10 amp, single phase service
- 110 Volt converter kit optional
- Zero lash belt drive
- Precision scotch yoke/wear plate system generating a high accuracy sine wave
- Standard 48" Steel columns (28" / 700mm eye to eye test area)
- "Future proof", completely upgradeable to 3VS - 5VS models for current cost difference only!

Options Available

- Nickel (rustless) Columns
- Non-contacting IR Temperature Sensor
- Pancake style load cell

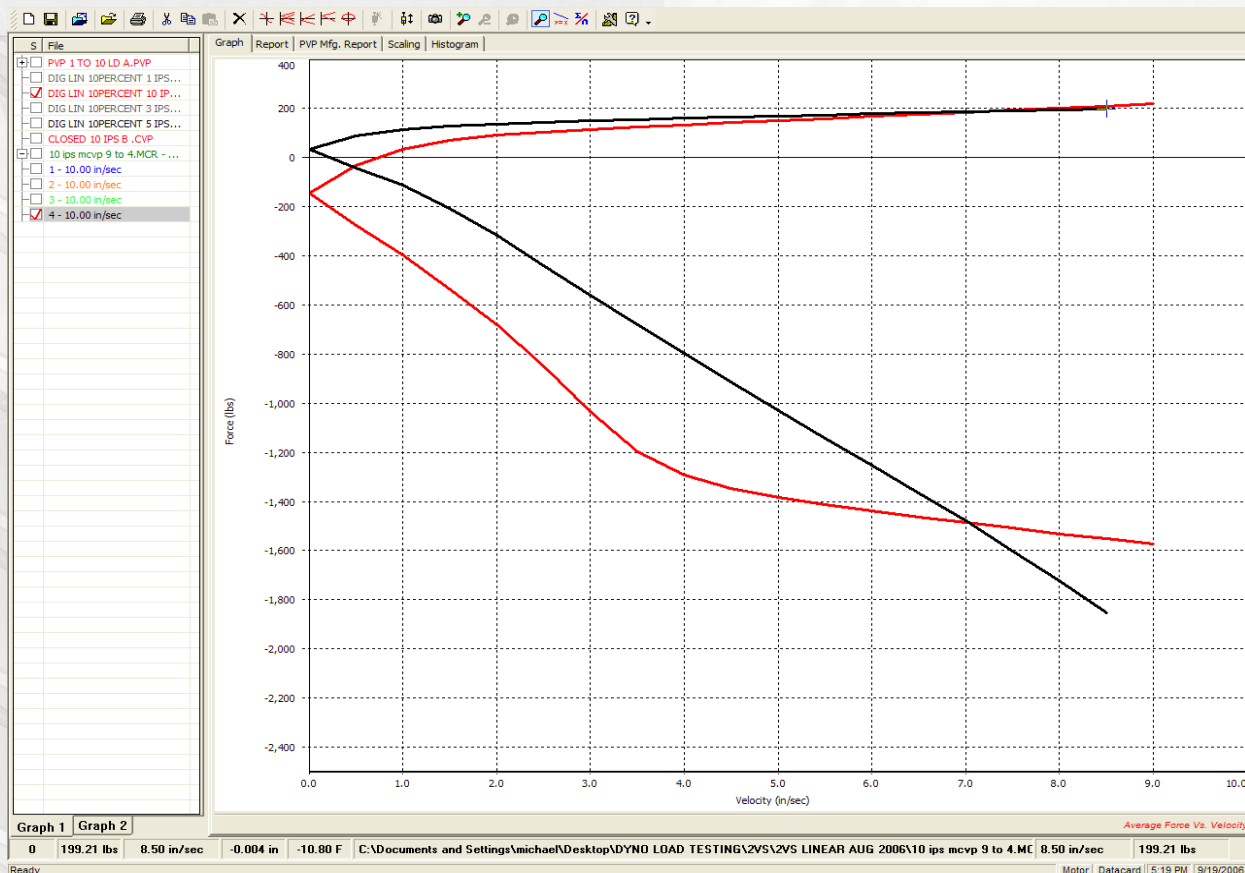


100 Lexington Parkway

Lexington NC 27295

2VS

Computer Controlled Electro-Mechanical Damper Dynamometer



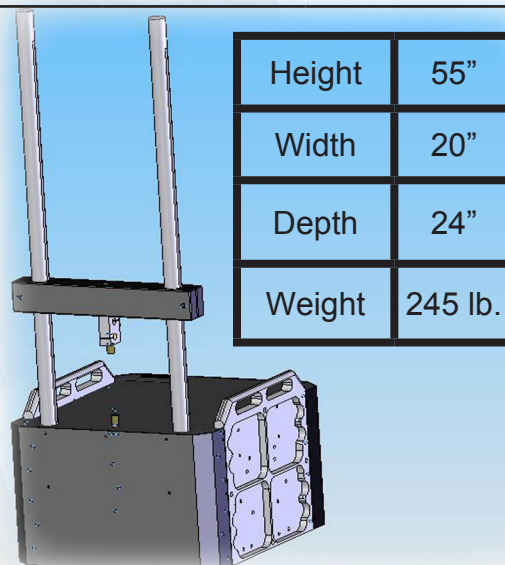
	2VS	Standard: Stroke (in)		Metric: Stroke (mm)	
		1.0	2.0	25	50
	CRANK HZ	Vel (in/s)	Vel (in/s)	Vel (mm/s)	Vel (mm/s)
Minimum	0.02	0.10	0.30	3.0	8.0
Maximum	3.61	11.3	22.7	285	575

Crank type units are standard with a given gear ratio to produce standard parameters for velocity. All units can be altered to meet the cusmtomers needs. Call for further assistance.

Mechanical Information

The 2VS uses a timing belt and pulley drive system to eliminate mechanical system backlash. This system also provides a reliable and an inexpensive “mechanical fuse” against excessive Peak Damper Forces. Peak Damper Forces, limited by the tensile strength of the timing belts, are rated at approximately 2000 lbs. for the 2VS.

Custom Stroke Settings and Peak Damper Velocity are available upon request. Roehrig Engineering, Inc. reserves the right to charge an additional price for such requests.



roehrigengineering.com

800/735-7265

Computer Controlled Electro-Mechanical Damper Dynamometer

3VS



The **3VS** is mechanically identical to our most popular model, the **5VS**. We build the **3VS** with a 3 Hp motor instead of the 5 Hp of the **5VS** allowing us to provide the fully computer-controlled, variable-speed feature at a lower cost. The **3VS** is capable of testing at four specific English or optional metric stroke settings, up to 2 inches (50mm). The **SHOCK6™ Test Control and Damper Analysis** software enables you to perform static and dynamic gas tests, temperature or time based warming of a damper, as well as stop the **3VS** at bottom dead center of the damper stroke. A standard **3VS** has force capacity up to +/- 2000 lbs. and damper velocities up to +/- 38 inches per second with a 2-inch stroke.

Typical Motorsports Application

The **3VS** is suitable for use by **NASCAR Nextel Cup, Busch, Craftsman Truck, Trans-Am, World Sports Car, European Touring Car** and other closed wheel racing teams for their race transporters. Completely portable, the **3VS** is well suited for use at a race event or test session, where building and testing dampers is of primary importance to a race team engineer or crew chief.

Standard Features for the 3VS Damper Dynamometer System:

- 3 Hp motor on Single phase 10 Amps or 3 Phase 6 Amps, 220 Volt supply power European 380-440 Volt option available
- 4 standard strokes: 2.0", 1.5", 1.0", 0.5" or metric strokes: 50mm, 40mm, 25mm, 15mm
- Computer-controlled actuator frequency: .05 Hz to 7.3 Hz
- +/- 2000 or 5000 lbs. pancake load cell standard, other ranges available on request
- 8 channel, 16 bit USB data acquisition
- IR Non-Contact Temperature Sensor
- 48" Bright Nickel (Rustless) Columns, 28" (700mm) eye to eye range (Longer columns available)
- Full computer control with SHOCK6™ test control and analysis software

Options Available

- Clevis type
- Add on Spring Rater
- Longer columns, sold in 12" (305 mm) increments

100 Lexington Parkway

Lexington NC 27295

3VS

Computer Controlled Electro-Mechanical Damper Dynamometer

Performance Specifications for Standard 3VS Damper Dynamometer

	3VS	STANDARD: STROKE (in)				METRIC: STROKE (mm)			
		0.5	1.0	1.5	2.0	15	25	40	50
	CRANK HZ	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)
Minimum	0.02	0.12*	0.12*	0.12*	0.12*	3*	3*	3*	3.2
Maximum	7.30	11.5	22.9	34.4	38(45.9)*	290	580	870	965(1165)*

*Velocity upper limit is limited by the velocity sensor itself to 38 in/sec. This can be altered per customer request.

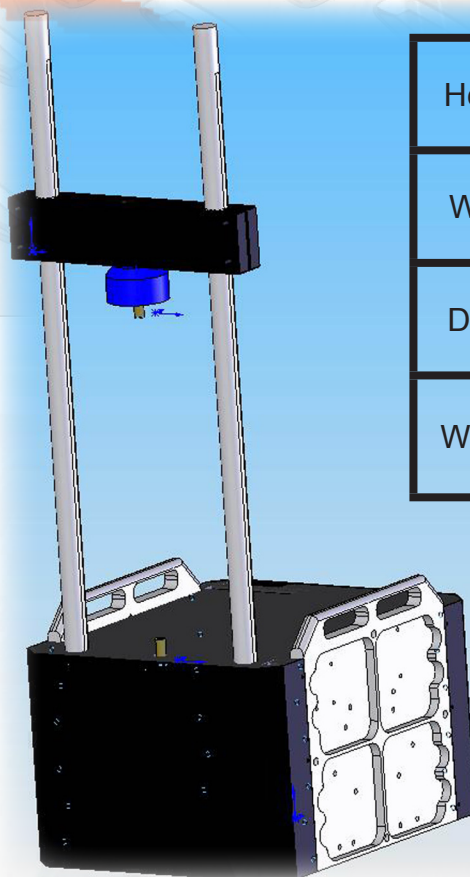
*Velocity lower limit can be adjusted as well upon request.

Crank type units are standard with a given gear ratio to produce standard parameters for velocity. All units can be altered to meet the customers needs. Call for further assistance.

Mechanical Information

The 3VS uses a timing belt and pulley drive system to eliminate mechanical system backlash. This system also provides a reliable and an inexpensive "mechanical fuse" against excessive Peak Damper Forces. Peak Damper Forces, limited by the tensile strength of the timing belts, are rated at approximately 2000 lbs. for the 3VS.

Custom Stroke Settings and Peak Damper Velocity are available upon request. Roehrig Engineering, Inc. reserves the right to charge an additional price for such requests.



Height	55"
Width	20"
Depth	24"
Weight	285 lb

Computer Controlled Electro-Mechanical Damper Dynamometer

5VS

Our most popular model, the **5VS**, is a fully computer controlled, variable motor speed model. It is capable of testing at four specific English or Metric stroke settings, up to 2 inches (50mm). **The SHOCK6™ Test Control and Damper Analysis** software enables you to perform static and dynamic gas tests, temperature or time based warming of a damper, as well as stop the **5VS** at bottom dead center. A standard **5VS** has force capacity up to +/- 2500 lbs. and damper velocities up to +/- 38 inches per second with a 2-inch stroke.

Typical Motorsports Application

The **5VS** is the system of choice by many of the **NASCAR Nextel Cup, Busch, Craftsman Truck, Trans-Am, World Sports Car, European Touring Car** and other closed wheel racing teams for their race transporters. Completely portable, the **5VS** is well suited for use at a race event or test session, where building and testing dampers is of primary importance to a race team engineer or crew chief.



Standard Features for the 5VS Damper Dynamometer System:

- 5 Hp motor on Single phase 17 Amps or 3 phase 10 Amps, 220 Volt supply power European 380-440 Volt option available
- 4 standard strokes: 2.0", 1.5", 1.0", 0.5" or metric strokes: 50mm, 40mm, 25mm, 15mm
- Computer-controlled actuator frequency: .05 Hz to 7.3 Hz
- +/- 2000 or 5000 lbs. pancake load cell standard, other ranges available on request
- 8 channel, 16 bit USB data acquisition
- IR Non-Contact Temperature Sensor
- 48" Bright Nickel (Rustless) Columns, 28" (700mm) eye to eye range (Longer columns available)
- Full computer control with SHOCK6™ test control and analysis software

Options Available

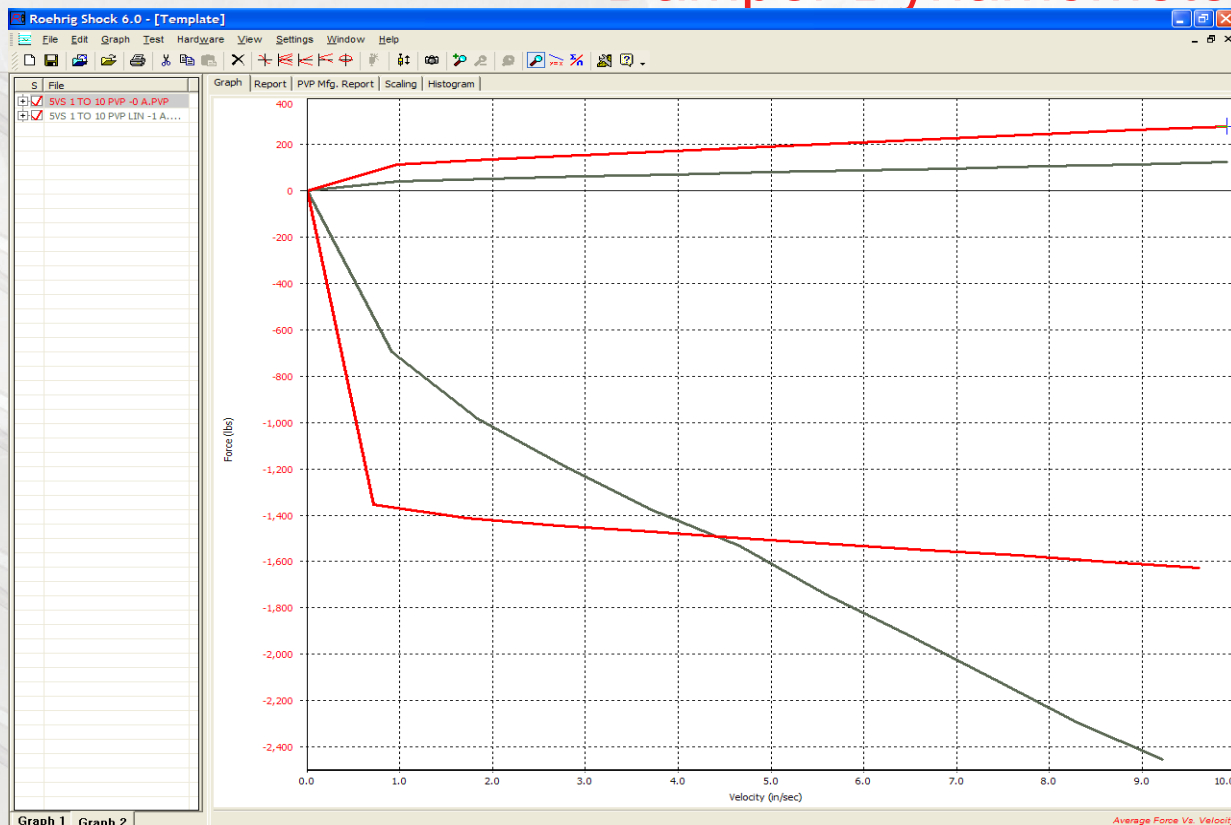
- Various load cell configurations including: 500lb, 2000lb and 5000lb
- 380-440 VAC.
- Longer columns, sold in 12" (305mm) increments
- Protective cage enclosure
- CE Cage with power shut off using door or light curtains

100 Lexington Parkway

Lexington NC 27295

5VS

Computer Controlled Electro-Mechanical Damper Dynamometer



	5VS	STANDARD: STROKE (in)				METRIC: STROKE (mm)			
		0.5	1.0	1.5	2.0	15	25	40	50
	CRANK HZ	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)
Minimum	0.02	0.12*	0.12*	0.12*	0.12*	3*	3*	3*	3.2
Maximum	7.30	11.5	22.9	34.4	38(45.9)*	290	580	870	965(1165)*

*Velocity upper limit is limited by the velocity sensor itself to 38 in/sec. This can be altered per customer request.

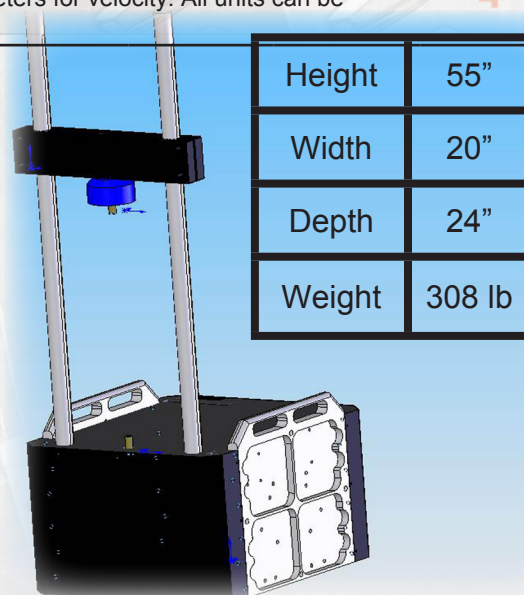
*Velocity lower limit can be adjusted as well upon request.

Crank type units are standard with a given gear ratio to produce standard parameters for velocity. All units can be altered to meet the customers needs. Call for further assistance.

Mechanical Information

The 5VS uses a timing belt and pulley drive system to eliminate mechanical system backlash. This system also provides a reliable and an inexpensive “mechanical fuse” against excessive Peak Damper Forces. Peak Damper Forces, limited by the tensile strength of the timing belts, are rated at approximately 2500 lbs. for the 5VS.

Custom Stroke Settings and Peak Damper Velocity are available upon request. Roehrig Engineering, Inc. reserves the right to charge an additional price for such requests.



roehrigengineering.com

800/735-7265

Computer Controlled Electro-Mechanical Damper Dynamometer

10VS

The **10VS** damper dynamometer is a faster and more powerful version of the **5VS**. The **10VS** is commonly used in a research and development facility, portable damper development support trailer, or a race team's shop. **The 10VS is fully computer controlled using the SHOCK6™ Test Control and Damper Analysis software.** The standard **10VS** features six English or Metric strokes up to 4 inches (100mm). It has a force capacity to +/- 3500 lbs. and velocities up to +/- 64 ips (1.6 m/sec). Longer strokes up to 6 inches (150mm) and higher velocities are available as an option.

The **10VS** is the system of choice by many of the world's leading automotive companies and OEM damper manufacturer's for their production vehicle ride and handling activities.

Typical Motorsports Application

Used by many **NASCAR Nextel Cup, Busch and ARCA** teams; especially those competing regularly at the Daytona & Talladega SuperSpeedways where larger damping forces are frequently required.

Standard Features for the 10VS Damper Dynamometer System:

- 10 Hp motor on Single phase 34 Amps or 3 phase 20 Amps, 220 Volt supply power European 380-440 Volt option available
- 6 standard strokes: 3.9", 3.0", 2.0", 1.5", 1.0", 0.75" or metric: 100mm, 75, 50, 40, 25, 15
- Computer-controlled actuator frequency: .05 Hz to 7.3 Hz
- +/- 5000 lbs. pancake load cell standard, other ranges available on request
- 8 Channel, 16 bit USB data acquisition standard
- IR Non-Contact Temperature Sensor
- 48" Bright Nickel (Rustless) Columns, 28" (700mm) eye to eye range (Longer columns available)
- Full computer control with SHOCK6™ test and analysis software

Options Available

- Longer stroke, 6" or 150 mm
- Various load cell configurations including: 500lb, 2000lb and 5000lb
- Longer columns, sold in 12" (305mm) increments
- Movement assisted crossbar
- Ball screw actuated crossbar
- Self clamping crossbar
- Protective cage enclosure
- CE Cage with power shut off using door on light curtains
- 720 Pulse / Rev encoder for low speed accuracy



10VS

Computer Controlled Electro-Mechanical Damper Dynamometer

Performance Specifications for Standard 10VS Damper Dynamometer

	10VS	STANDARD: STROKE (in)						
		0.75	1.0	1.5	2.0	3.0	3.9	6 (10VS Option)
	CRANK HZ	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (in/s)
Minimum	0.02	0.12*	0.12*	0.12*	0.12*	0.19	0.249	0.382
Maximum	7.30	17.2	22.9	34.4	45.9	64(68.8)*	64(89.5)*	64 (137)*

		METRIC: STROKE (mm)						
		15	25	40	50	75	100	150 (10VS Option)
	CRANK HZ	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)
Minimum	0.02	3.05*	3.05*	3.05	3.2	4.8	6.4	9.6
Maximum	7.30	340	570	915	1145	1620(1721)*	1620(2290)*	1620(3440)*

*Velocity upper limit is limited by the velocity sensor itself to 64 in/sec. This can be altered per customer request.

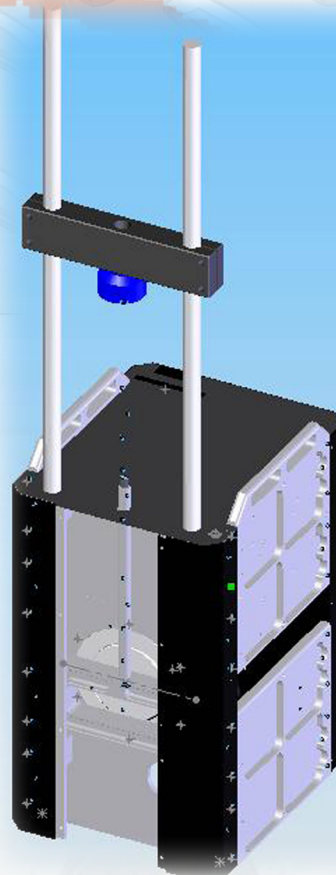
*Velocity lower limit can be adjusted as well upon request.

Crank type units are standard with a given gear ratio to produce standard parameters for velocity. All units can be altered to meet the customers needs. Call for further assistance.

Mechanical Information

The 10VS uses a timing belt and pulley drive system to eliminate mechanical system backlash. This system also provides a reliable and an inexpensive “mechanical fuse” against excessive Peak Damper Forces. Peak Damper Forces, limited by the tensile strength of the timing belts, are rated at approximately 3500 lbs. for the 10VS.

Custom Stroke Settings, Peak Damper Velocity and working height for Dampers are available upon request. Roehrig Engineering, Inc. reserves the right to charge an additional price for such requests.



Height	80"
Width	20"
Depth	24"
Weight	610 lb

Computer Controlled Electro-Mechanical Damper Dynamometer

20VS

The **20VS** damper dynamometer is a faster and more powerful version of the **10VS**. The **20VS** model is commonly used in research and development, quality assurance, manufacturing facilities, and portable damper development support trailers. The **20VS** is fully computer controlled using the **SHOCK6™ Test Control and Damper Analysis software**. The standard **20VS** features seven English or Metric strokes up to 6 inches (150mm). It has a force capacity to +/- 4500 lbs. and velocities up to +/- 64 ips (1.6 m/sec).

The **20VS** is the system of choice by many of the world's leading automotive companies and OEM damper manufacturers for their production, as well as ride and handling development activities.

Typical Motorsports Application

The 20VS is used extensively by rally and/or off-road vehicle racing teams where dampers commonly have large strokes, high damper velocities, and large damping forces in both compression and rebound.

Standard Features for the 20VS Damper Dynamometer System:

- 20 Hp motor on 3 phase 20 Amps, 440 Volt supply power
- 7 strokes: 6.0", 4.0", 3.0", 2.0", 1.5", 1.0", 0.75" or metric: 150mm, 100, 75, 50, 40, 25, 15
- Computer-controlled actuator frequency: .05 Hz to 7.3 Hz
- +/- 5000 lbs. pancake load cell standard, other ranges available on request
- 8 Channel, 16 bit USB data acquisition standard
- IR Non-Contact Temperature Sensor
- 48" Bright Nickel (Rustless) Columns, 27" (700mm) eye to eye range (Longer columns available)
- 720 Pulse / Rev encoder for low speed accuracy
- Full computer control with SHOCK6™ test and analysis software

Options Available

- Various load cell configurations including: 500lb, 2000lb and 5000lb
- Longer columns, sold in 12" (305mm) increments
- Movement assisted crossbar
- Ball screw actuated crossbar
- Self clamping crossbar
- Protective cage enclosure
- CE Cage with power shut off using door on light curtains



20VS

Computer Controlled Electro-Mechanical Damper Dynamometer

Performance Specifications for Standard 20VS Damper Dynamometer

	10VS	STANDARD: STROKE (in)						
		0.75	1.0	1.5	2.0	3.0	3.9	6 (10VS Option)
	CRANK HZ	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (in/s)	Vel (in/s)
Minimum	0.02	0.12*	0.12*	0.12*	0.12*	0.19	0.249	0.382
Maximum	7.30	17.2	22.9	34.4	45.9	64(68.8)*	64(89.5)*	64 (137)*

		METRIC: STROKE (mm)						
		15	25	40	50	75	100	150 (10VS Option)
	CRANK HZ	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)	Vel (mm/s)
Minimum	0.02	3.05*	3.05*	3.05	3.2	4.8	6.4	9.6
Maximum	7.30	340	570	915	1145	1620(1721)*	1620(2290)*	1620(3440)*

*Velocity upper limit is limited by the velocity sensor itself to 64 in/sec. This can be altered per customer request.

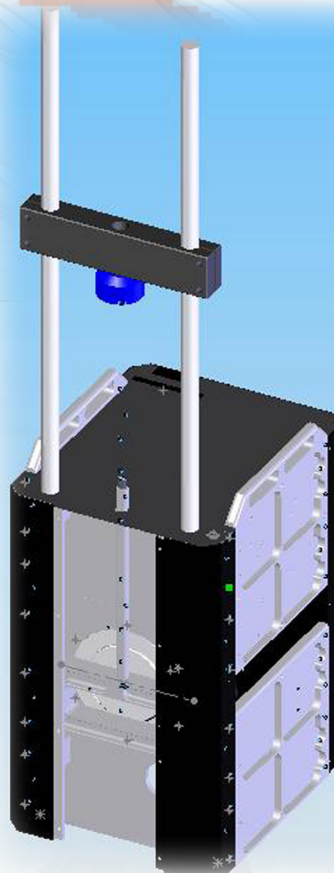
*Velocity lower limit can be adjusted as well upon request.

Crank type units are standard with a given gear ratio to produce standard parameters for velocity. All units can be altered to meet the customers needs. Call for further assistance.

Mechanical Information

The 20VS uses a timing belt and pulley drive system to eliminate mechanical system backlash. This system also provides a reliable and an inexpensive “mechanical fuse” against excessive Peak Damper Forces. Peak Damper Forces, limited by the tensile strength of the timing belts, are rated at approximately 4500 lbs. for the 20VS.

Custom Stroke Settings, Peak Damper Velocity and working height for Dampers are available upon request. Roehrig Engineering, Inc. reserves the right to charge an additional price for such requests.



Height	80"
Width	20"
Depth	24"
Weight	620 lb

Computer Controlled Electro-Mechanical Damper Dynamometer

30VS

The **30VS** is the largest crank-style damper dynamometer built by **Roehrig Engineering, Inc.** Major automotive manufacturers and OEM damper manufacturers commonly use the **30VS** model to support damper research and development, and quality assurance work at company testing facilities. The 30VS is completely computer controlled using the **SHOCK6™ Test Control and Damper Analysis** software.

A **30VS** may be configured with a user's choice of up to eight English or Metric strokes up to 6 inches (150mm). Maximum force capacity up to +/- 5000 lbs. and velocities up to +/- 80 ips (2.0 m/sec) are standard with the **30VS**.

Typical Motorsports Application

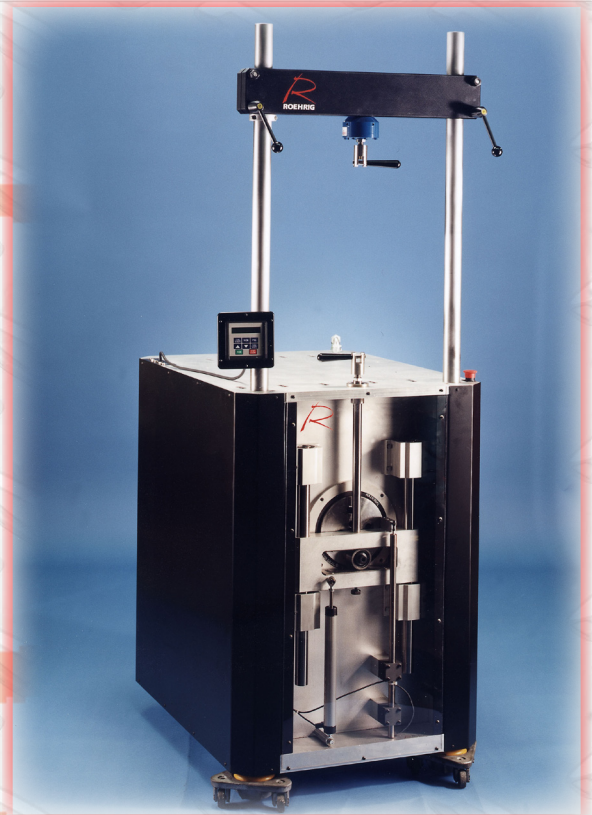
The **30VS** is used extensively by rally and/or off-road vehicle racing teams where large strokes, high damper velocities and large damping forces in both compression and rebound are common. **30VS** systems can be configured to be housed in race transporters for damper build and test support, while racing or testing.

Standard Features for the 30VS Damper Dynamometer System:

- 30 Hp motor output when wired to 3 phase, 440 volt power supply (380 volt optional)
- Up to 8 customer-defined stroke settings from 0.25" to 6.0" or
- Up to 8 customer defined stroke settings from 5 to 150 mm
- Crank speeds: 10 to 255 RPM
- IR Temperature sensor
- +/- 5000 lbs. pancake load cell, standard, other ranges available on request
- 8 channel, 16 bit USB data acquisition
- IR Non-Contact Temperature Sensor
- Chrome Columns
- Full computer control with SHOCK6™ test and analysis software

Options Available

- Various load cell configurations including: 500lb, 2000lb and 5000lb
- Longer columns, sold in 12" (305mm) increments
- Movement assisted crossbar
- Ball screw actuated crossbar
- Self clamping crossbar
- Protective cage enclosure
- CE Cage with power shut off using door on light curtains



30VS

Computer Controlled Electro-Mechanical Damper Dynamometer

Performance Specifications for Standard 30VS Damper Dynamometer

Crank Stroke	0.5 in	1.0 in	1.5 in	2.0 in	3.0 in	3.9 in	15 mm	25 mm	40 mm	50 mm	75 mm	100mm
Crank Speed RPM	Peak Velocity ips	Peak Velocity ips	Peak Velocity ips	Peak Velocity ips	Peak Velocity ips	Peak Velocity ips	Peak Velocity mm/sec	Peak Velocity mm/sec	Peak Velocity mm/sec	Peak Velocity mm/sec	Peak Velocity mm/sec	Peak Velocity mm/sec
20	0.52	1.05	1.57	2.09	3.14	4.19	16	26	42	52	79	105
40	1.05	2.09	3.14	4.19	6.28	8.38	31	52	84	105	157	209
60	1.57	3.14	4.71	6.28	9.42	12.57	47	79	126	157	236	314
80	2.09	4.19	6.28	8.38	12.57	16.76	63	105	168	209	314	419
100	2.62	5.24	7.85	10.47	15.71	20.94	79	131	209	262	393	524
120	3.14	6.28	9.42	12.57	18.85	25.13	94	157	251	314	471	628
140	3.67	7.33	11.00	14.66	21.99	29.32	110	183	293	367	550	733
160	4.19	8.38	12.57	16.76	25.13	33.51	126	209	335	419	628	838
180	4.71	9.42	14.14	18.85	28.27	37.70	141	236	377	471	707	942
200	5.24	10.47	15.71	20.94	31.42	38.0*	157	262	419	524	785	1047*

Mechanical Information

The 30VS uses a timing belt and pulley drive system to eliminate mechanical system backlash. Peak Damper Forces are rated at approximately 5000 lbs. for the 30VS.

Custom Stroke Settings, Peak Damper Velocity and working height for Dampers are available upon request. Roehrig Engineering, Inc. reserves the right to charge an additional price for such requests.

Height	86"
Width	28"
Depth	33"
Weight	800 lb

Computer Controlled Electro-Magnetic Actuated Test System

EMA-2K



The **EMA (Electro-Magnetic Actuator)** test system is a development tool for serious racers and damper manufacturers. It can create virtually any wave form: Sine, Triangle, Sine on Sine, Square and combinations. EMA features a 7 inch (177mm) stroke range, excellent frequency response over 100 Hz, and velocities beyond 3 meters per second. EMA can go from .010 inch stroke at a velocity of .020 inch per second to 6 inch stroke at 140 inches per second with a simple key stroke.

EMA provides all the dynamic advantages of a servo hydraulic dynamometer without the safety, energy, cost, facility and environmental problems associated with hot, high pressure hydraulic oil. It provides extremely fast response as well as excellent positioning accuracy, while eliminating backlash, and wear. The **EMA-2K** (2000lb or 8.8Kn) model is available to fit your testing needs.

The **EMA** can play back track/road data collected from a number of commonly used data acquisition systems. Partial, full, or multiple lap play back is possible. Shaker rig data can also be used. EMA is also fully capable of reproducing sinusoidal waveforms identical to our industry standard crank style dynamometers. The **EMA** system uses **Shock6.0 Test Control and Damper Analysis** software.

The 2K EMA can be built with a CE cage and automatic lockouts for safety and compliance.

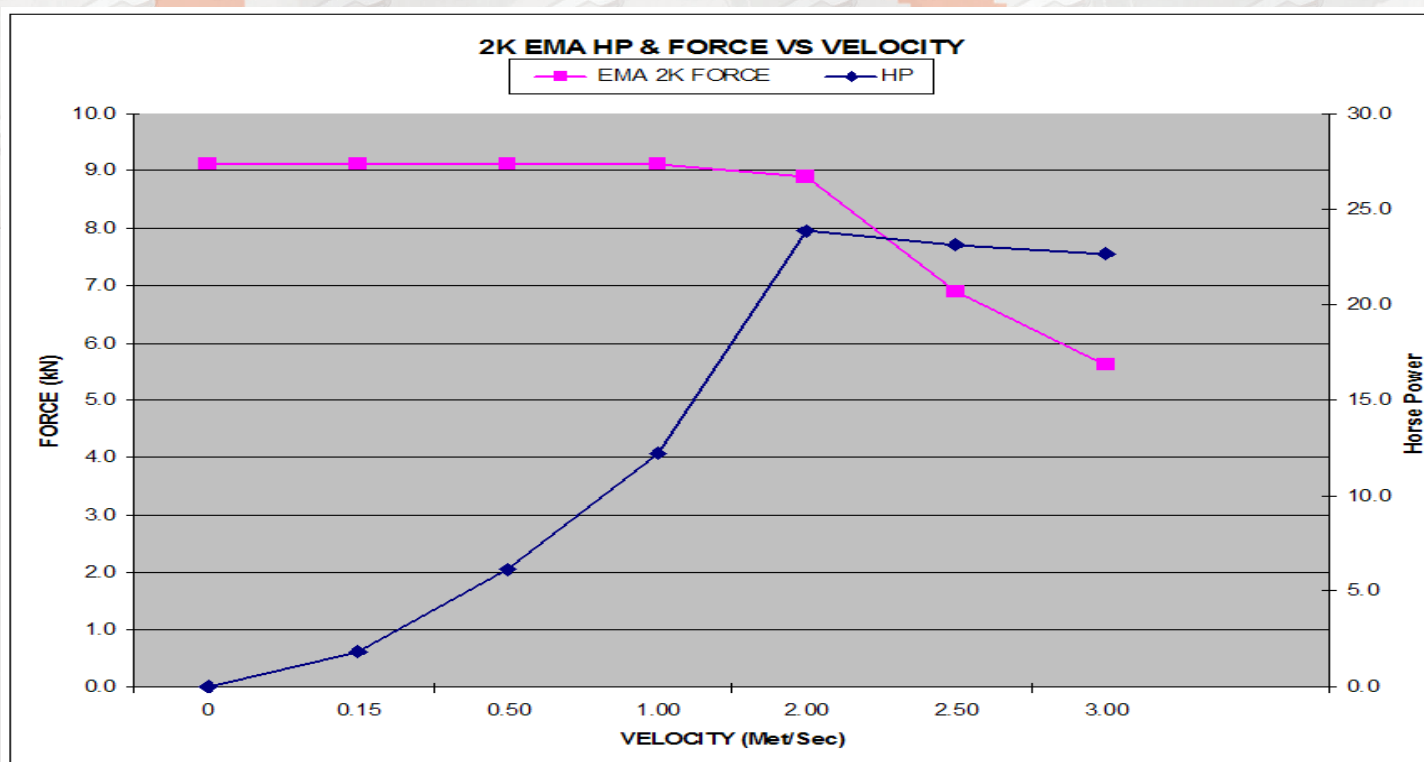
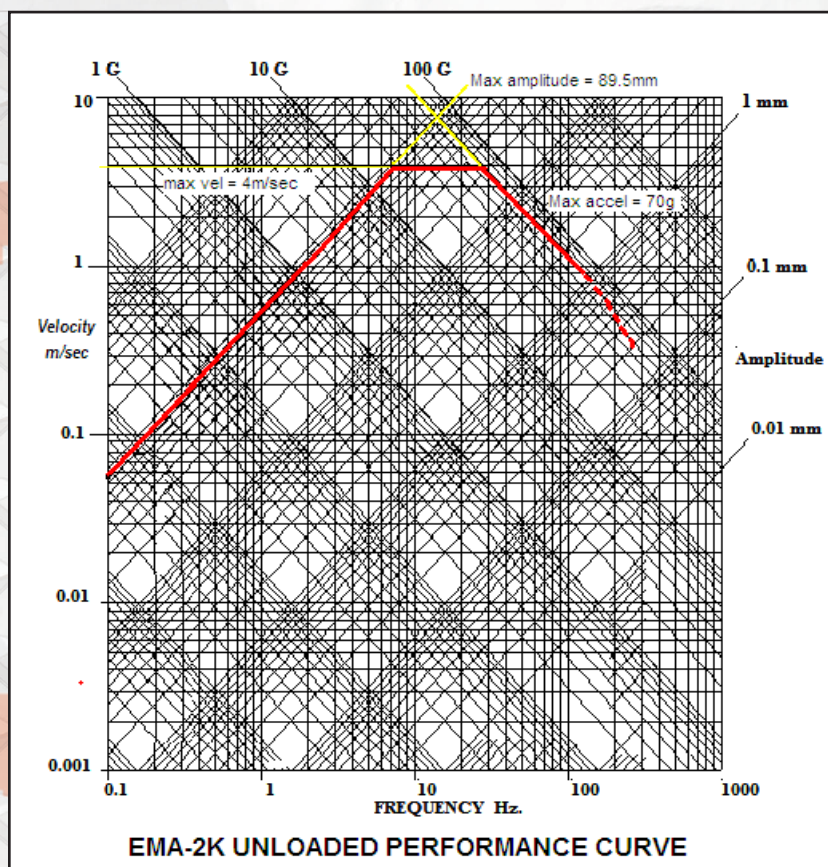
Standard Features for the 2K EMA Series Test System:

- Up to 25hp Peak Actuator Output when powered with 3-phase, 220 Volts.
- Drive position resolution of 1.0 micron
- 16-bit motion control card
- Usable stroke range from 0.005 - 7.0 inches (0.25-177.0 mm)
- Excellent Frequency response over 100 Hz
- 8 Channel, 16-bit A/D data acquisition system
- +/- 2000 lbs (9Kn). Pancake style load cell – Standard (other ranges available upon request)
- Infrared non contact style temperature transducer

Computer Controlled Electro-Magnetic Actuated Test System

EMA-2K

EMA 2K PEAK FORCE CAPABILITY				
TEST PERFORMED USING SINE WAVE INPUT AND LINEAR DAMPER				
PEAK Velocity	PEAK Force	PEAK Velocity	PEAK Force	PEAK HP
in / sec	lbs	Met / Sec	kN	
0.0	2050	0.0	9.1	0
6.0	2050	0.15	9.1	1.8
20.0	2050	0.50	9.1	6.1
39.0	2050	1.00	9.1	12
79.0	2000	2.00	8.9	24
98.0	1550	2.50	6.9	23
118.0	1265	3.00	5.6	22



Computer Controlled Electro-Magnetic Actuated Test System

EMA-4K



The **EMA (Electro-Magnetic Actuator)** test system is a development tool for serious racers and damper manufacturers. It can create virtually any wave form: Sine, Triangle, Sine on Sine, Square and combinations. EMA features a 7 inch (177mm) stroke range, excellent frequency response over 100 Hz, and velocities beyond 3 meters per second. EMA can go from .010 inch stroke at a velocity of .005 inch per second to 6 inch stroke at 140 inches per second with a simple key stroke.

EMA provides all the dynamic advantages of a servo hydraulic dynamometer without the safety, energy, cost, facility and environmental problems associated with hot, high pressure hydraulic oil. It provides extremely fast response as well as excellent positioning accuracy, while eliminating backlash, and wear. The **EMA 4K**-(4000lb or 17.6Kn) model is available to fit your testing needs.

The **EMA** can play back track/road data collected from a number of commonly used data acquisition systems. Partial, full, or multiple lap play back is possible. Shaker rig data can also be used. EMA is also fully capable of reproducing sinusoidal waveforms identical to our industry standard crank style dynamometers. The **EMA** system uses **Shock6.0 Test Control and Damper Analysis** software.

The 4K EMA can be built with a CE cage and automatic lockouts for safety and compliance.

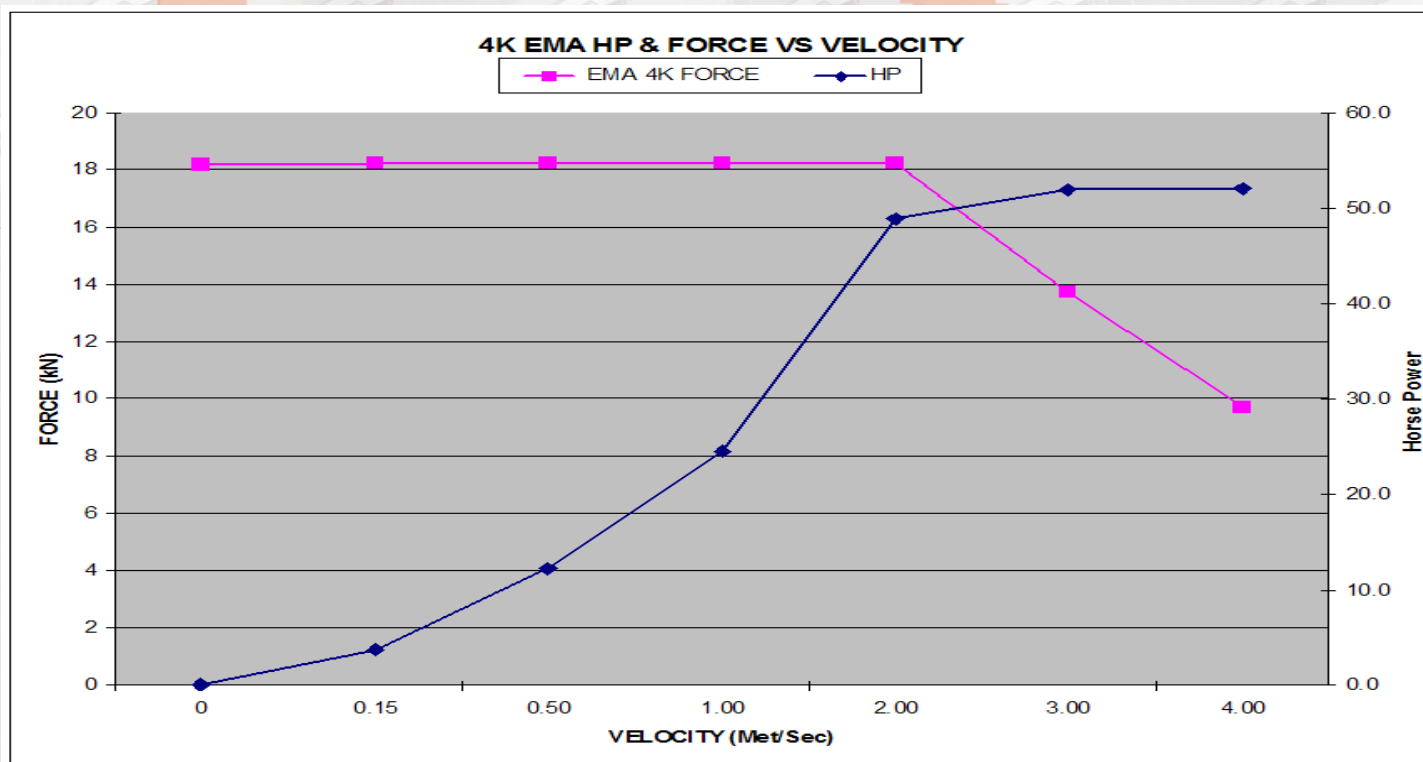
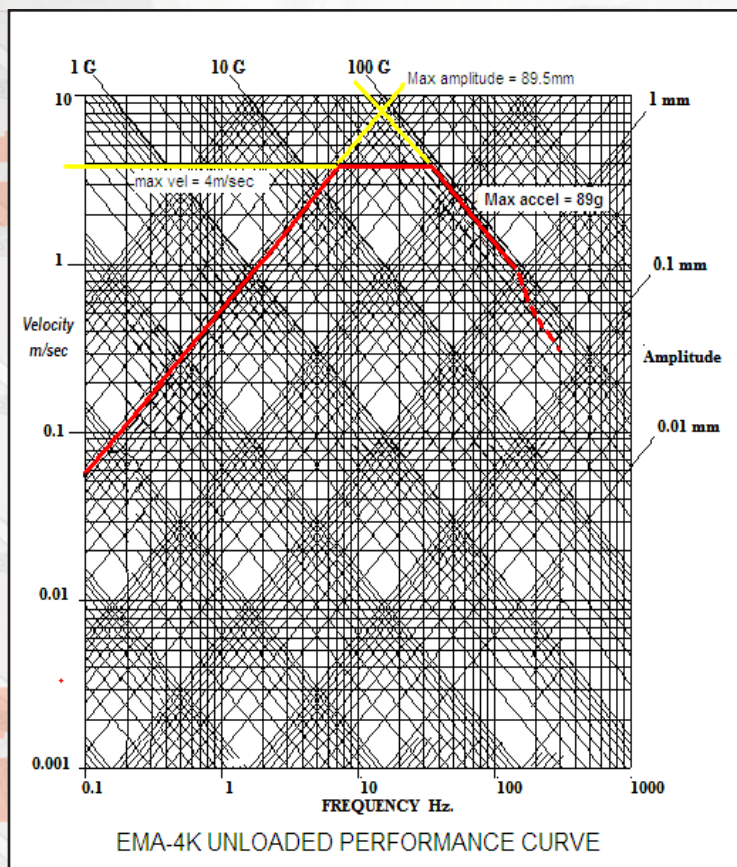
Standard Features for the 4K EMA Series Testing System:

- Up to 55hp Peak Actuator Output when powered with 3-phase, 220 Volts.
- Drive position resolution of 1.0 micron
- Utilizes high-current, highly reliable servo amplifiers
- Usable stroke range from 0.005 - 7.0 inches (0.25-177.0 mm)
- Excellent Frequency response over 100 Hz
- 8 Channel, 16-bit data acquisition system
- +/- 5000 lbs (22Kn). Pancake style load cell – Standard (other ranges available upon request)
- Infrared non contact style temperature transducer
- Fully computer controlled with Shock6.0 Test Control and Damper Analysis software
- Complete turnkey system includes desktop PC

EMA-4K

Computer Controlled Electro-Magnetic Actuated Test System

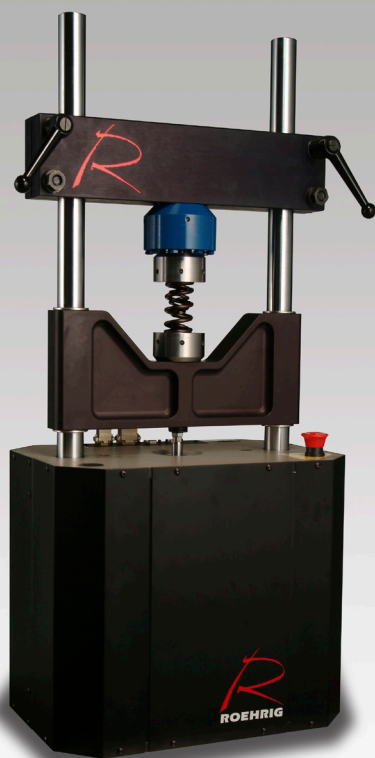
EMA 4K PEAK FORCE CAPABILITY				
TEST PERFORMED USING SINE WAVE INPUT AND LINEAR DAMPER				
PEAK	PEAK	PEAK	PEAK	PEAK
Velocity	Force	Velocity	Force	HP
in/sec	lbs	Met/sec	kN	
0.0	4100	0.00	18.20	0.0
6.0	4100	0.15	18.20	3.7
20.0	4100	0.50	18.20	12.4
39.0	4100	1.00	18.20	28.0
79.0	4100	2.00	18.20	51.6
118.0	2900	3.00	13.80	51.8
157.0	2180	4.00	9.70	51.9



Computer Controlled Roller Screw Actuated Valve Spring Rater

RoSA

VSR-11D3



The **Valve Spring Rater (VSR)** is the first turnkey solution released in Roehrig Engineering's new **Roller Screw Actuator (RoSA)** Series. The **VSR-11D3 (1100 LB, 3 INCH)** features a bench top load frame with a base-mounted high performance roller screw electric actuator, providing smooth and precise linear motion.

Benefits of the VSR-11D3 include:

- Lower operating costs due to direct electric energy to motion conversion efficiencies.
- More accurate and repeatable results than comparable hydraulic or pneumatic systems
- Significantly reduced facility and installation costs
- Lightweight and portable

A unique advantage of the **VSR Advanced Spring®** software is the ability to do continuous displacement-based data acquisition, which is user-configurable to obtain simultaneous force and displacement samples at increments as small as 0.0001 inch, regardless of velocity.

Typical Applications:

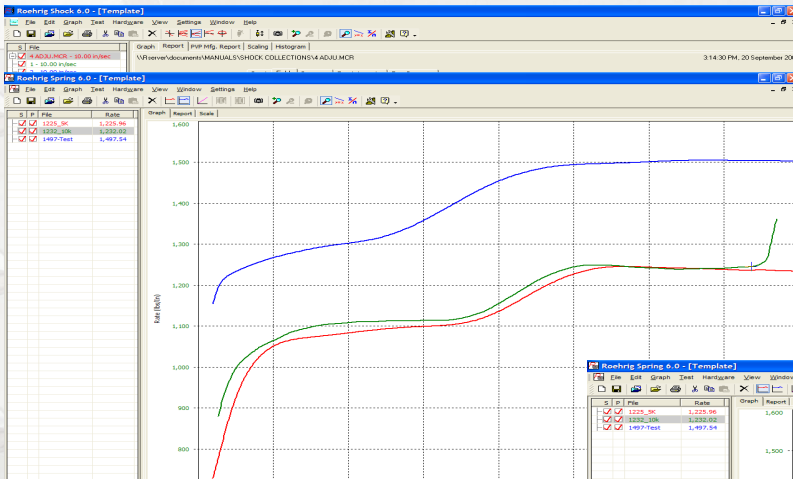
The **VSR-11D3** has been optimized for use as a development and analysis tool by spring manufacturers and advanced engine builders.

While the **VSR-11D3** has been sized to handle the majority of the automotive engine market, other force and stroke configurations can easily be configured to meet your additional testing requirements.

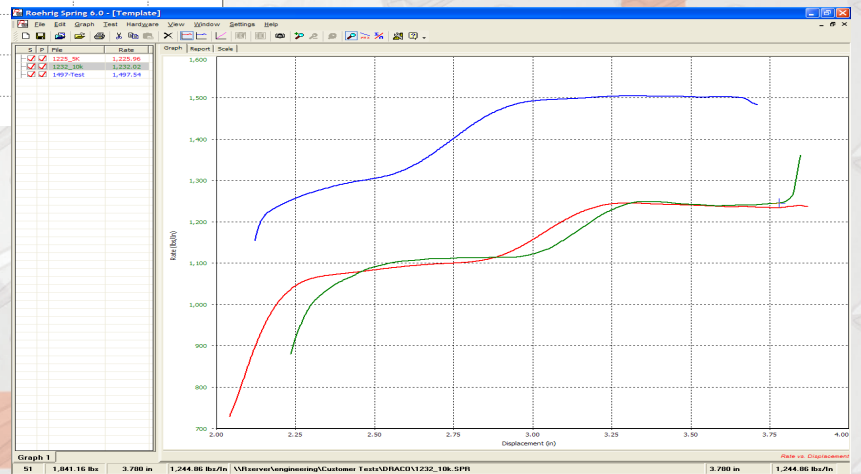
Standard Features of the VSR-11D3:

- Efficient direct electric Roller Screw Actuation
- Up to 7 inch (178mm) standard test opening
- 1100 lb (5kN) load range with standard load cell
- 3 inch (76mm) dynamic stroke with 0.13 micron resolution
- User-definable preload and test range in displacement and/or force
- Ability to overlay plots, including Displacement vs. Spring Rate, Force vs. Spring Rate and Displacement vs. Force
- Output Results include tabular report format, along with statistical analysis of batch results, Coil Bind, Free Length, as well as Spring Rate throughout entire spring travel

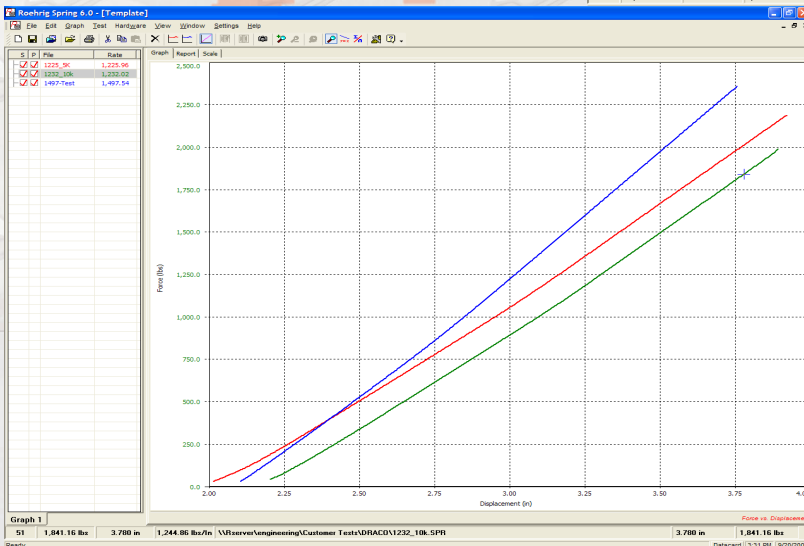
ADVANCED SPRING® Valve Rate Test & Analysis Software Sample Data Plots



**Displacement vs. Spring Rate
6 different springs**

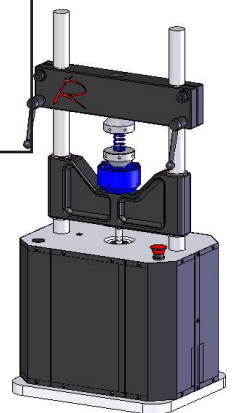


**Force vs. Spring Rate
6 different springs**



**Displacement vs. Force Graph
6 different springs**

W: 17.5"
445 mm
D: 14.0"
356 mm
H: 37.0"
938 mm



Custom Settings, including dynamic stroke, force capacity, peak velocity, and extended column lengths are available upon request.

Computer Controlled Roller Screw Actuated Valve Spring Rater

RoSA

ASR-16D6



The **Valve Spring Rater (VSR)** is the first turnkey solution released in Roehrig Engineering's new **Roller Screw Actuator (RoSA)** Series. The **ASR-16D6 (1600 LB, 6 INCH)** features a bench top load frame with a base-mounted high performance roller screw electric actuator, providing smooth and precise linear motion.

Benefits of the ASR-16D6 include:

- Lower operating costs due to direct electric energy to motion conversion efficiencies.
- More accurate and repeatable results than comparable hydraulic or pneumatic systems
- Significantly reduced facility and installation costs
- Lightweight and portable

A unique advantage of the **VSR Advanced Spring®** software is the ability to do continuous displacement-based data acquisition, which is user-configurable to obtain simultaneous force and displacement samples at increments as small as 0.0001 inch, regardless of velocity.

Typical Applications:

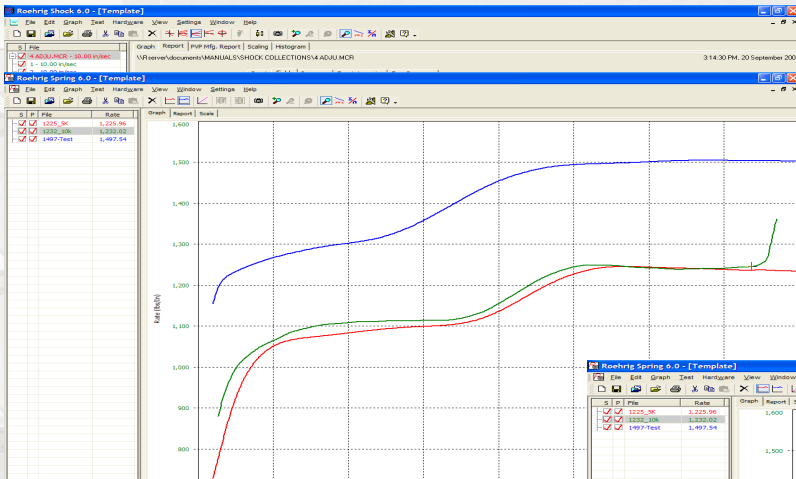
The **ASR-16D6** has been optimized for use as a development and analysis tool by spring manufacturers and advanced engine builders.

While the **ASR-16D6** has been sized to handle the majority of the automotive engine market, other force and stroke configurations can easily be configured to meet your additional testing requirements.

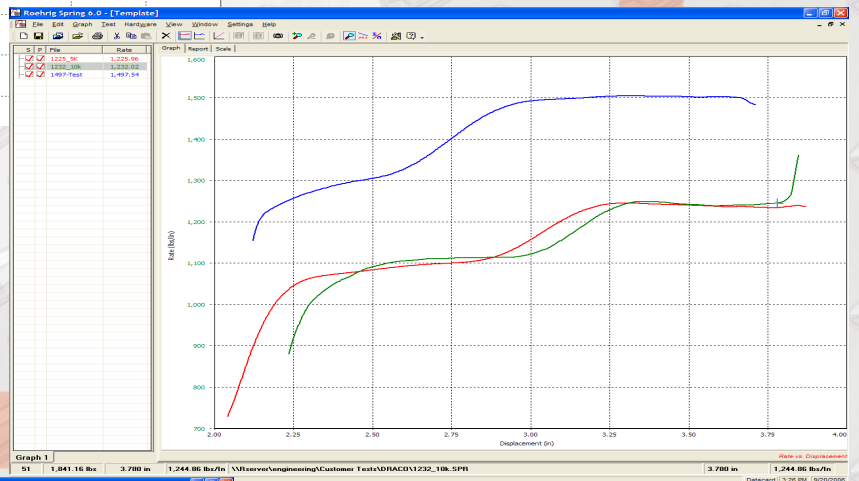
Standard Features of the ASR-16D6:

- Efficient direct electric Roller Screw Actuation
- Up to 7 inch (178mm) standard test opening
- 1600 lb (5kN) load range with standard load cell
- 6 inch (76mm) dynamic stroke with 0.13 micron resolution
- User-definable preload and test range in displacement and/or force
- Ability to overlay plots, including Displacement vs. Spring Rate, Force vs. Spring Rate and Displacement vs. Force
- Output Results include tabular report format, along with statistical analysis of batch results, Coil Bind, Free Length, as well as Spring Rate throughout entire spring travel

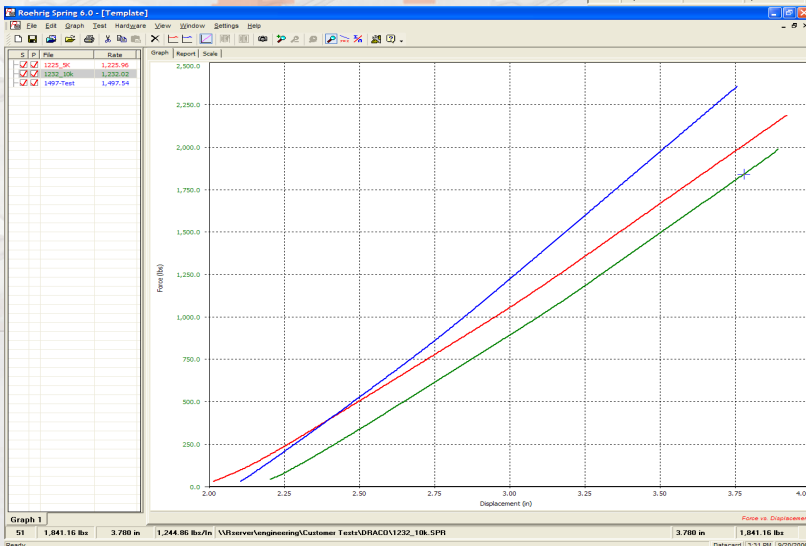
ADVANCED SPRING® Valve Rate Test & Analysis Software Sample Data Plots



**Displacement vs. Spring Rate
6 different springs**

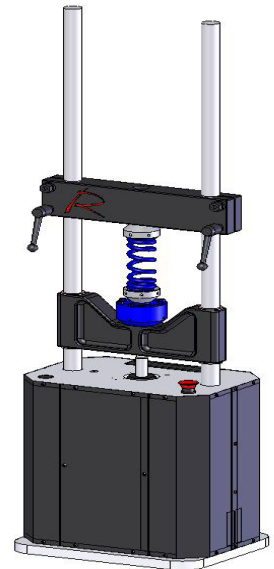


**Force vs. Spring Rate
6 different springs**



**Displacement vs. Force Graph
6 different springs**

D: 14.0"
934 mm
W: 17.5"
445 mm
H: 60"
1500 mm



Custom Settings, including dynamic stroke, force capacity, peak velocity, and extended column lengths are available upon request.

Computer Controlled Roller Screw Actuated Valve Spring Rater

RoSA

ASR-80D10



The **Valve Spring Rater (VSR)** is the first turnkey solution released in Roehrig Engineering's new **Roller Screw Actuator (RoSA)** Series. The **ASR-80D10 (8000 LB, 10 INCH)** features a bench top load frame with a base-mounted high performance roller screw electric actuator, providing smooth and precise linear motion.

Benefits of the ASR-80D10 include:

- Lower operating costs due to direct electric energy to motion conversion efficiencies.
- More accurate and repeatable results than comparable hydraulic or pneumatic systems
- Significantly reduced facility and installation costs
- Lightweight and portable

A unique advantage of the **VSR Advanced Spring®** software is the ability to do continuous displacement-based data acquisition, which is user-configurable to obtain simultaneous force and displacement samples at increments as small as 0.0001 inch, regardless of velocity.

Typical Applications:

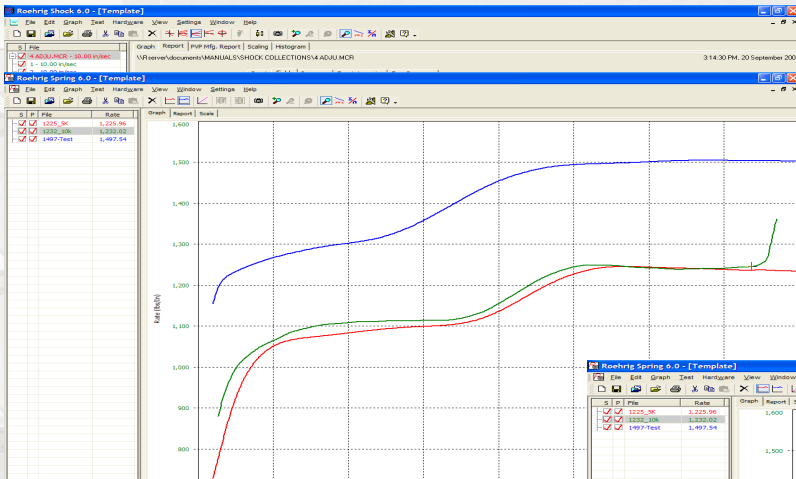
The **ASR-80D10** has been optimized for use as a development and analysis tool by spring manufacturers and advanced engine builders.

While the **ASR-80D10** has been sized to handle the majority of the automotive engine market, other force and stroke configurations can easily be configured to meet your additional testing requirements.

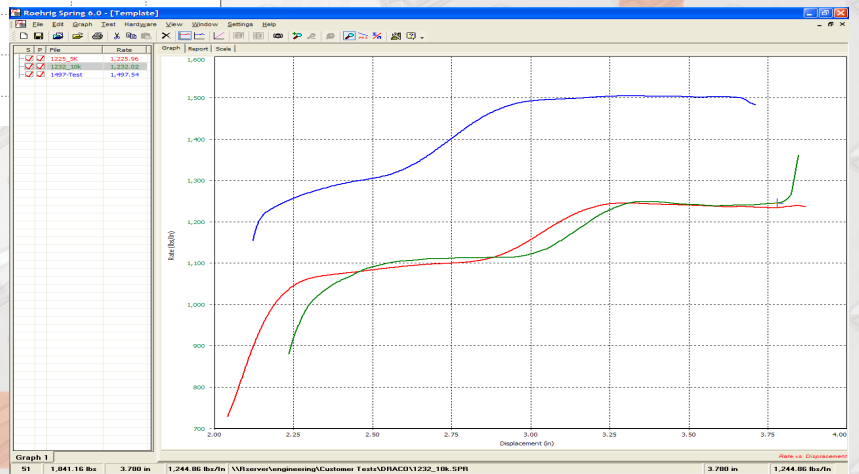
Standard Features of the ASR-80D10:

- Efficient direct electric Roller Screw Actuation
- Up to 7 inch (178mm) standard test opening
- 8000 lb (5kN) load range with standard load cell
- 10 inch (76mm) dynamic stroke with 0.13 micron resolution
- User-definable preload and test range in displacement and/or force
- Ability to overlay plots, including Displacement vs. Spring Rate, Force vs. Spring Rate and Displacement vs. Force
- Output Results include tabular report format, along with statistical analysis of batch results, Coil Bind, Free Length, as well as Spring Rate throughout entire spring travel

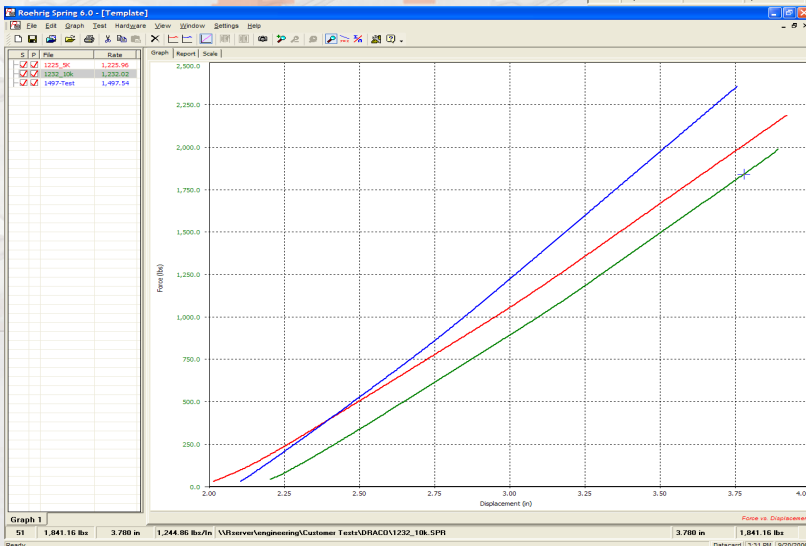
ADVANCED SPRING® Valve Rate Test & Analysis Software Sample Data Plots



**Displacement vs. Spring Rate
6 different springs**

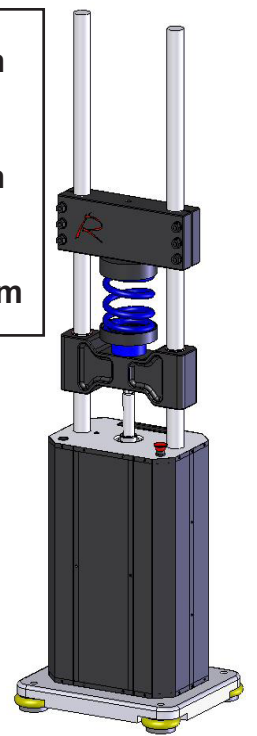


**Force vs. Spring Rate
6 different springs**



**Displacement vs. Force Graph
6 different springs**

W: 28"
711 mm
D: 24"
610 mm
H: 78"
1980 mm



Custom Settings, including dynamic stroke, force capacity, peak velocity, and extended column lengths are available upon request.

Hydraulically Actuated Spring Rater

SASR

To assist you in checking the dynamic spring rates of both closed and open ended coil springs, **Roehrig Engineering** offers a hydraulically actuated **Spring Rate Checker** and the **SPRING 6™ Spring Rate Test & Analysis** software. Rather than collecting the spring rate data statically, REI's unit rates the spring as it expands after being compressed, calculating a dynamic spring rate. A high force hydraulic, hand-actuated jack is used to compress the spring and the user releases the spring when instructed to do so by the software. The collection is started at release and continues to full extension. What the user gets is a dynamic curve of the spring rate throughout the preload and test range.

Additional options available for the Spring Rate Checker are electric and pneumatic pumps to actuate the hydraulic jack for compressing springs.

Add on Spring Rater:



Turn your Roehrig Engineering Damper Dynamometer into a dynamic spring rater.

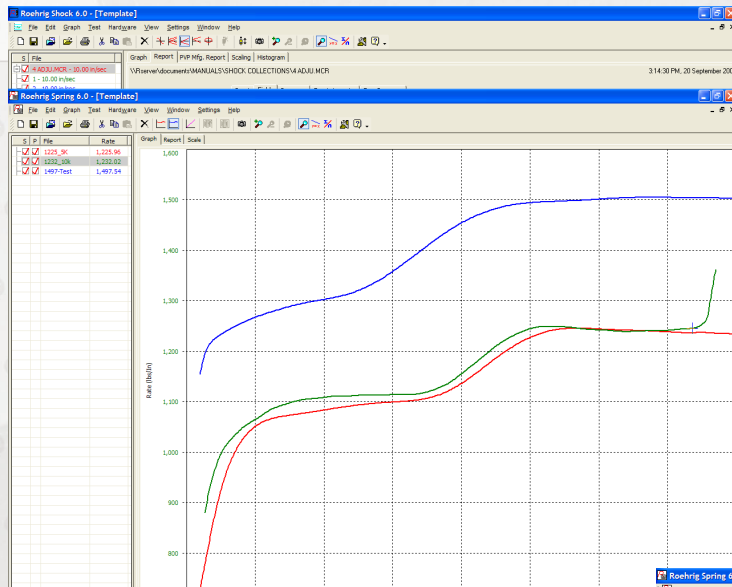
Standard Features Include

- Data collected dynamically over the test and preload range
- 7" testing range, standard
- 5000 lb. load range with standard load cell (10,000 lb. maximum capacity)
- Capable of testing flat ground and open coil end springs
- User definable pre-load range and test range in displacement and/or force
- Displacement vs. Spring Rate, Force vs. Spring Rate and Displacement vs. Force
- Ability to overlay plots
- Software produces reports in a tabular report format

Options

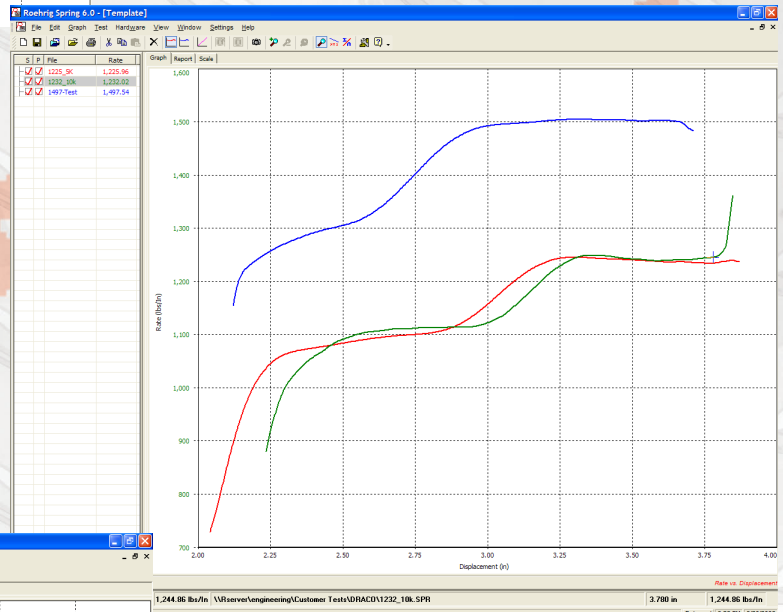
- Electric or air over hydraulic pumps
- 12" test range

SPRING 6.0™ Spring Rate Test & Analysis Software Sample Data Plots

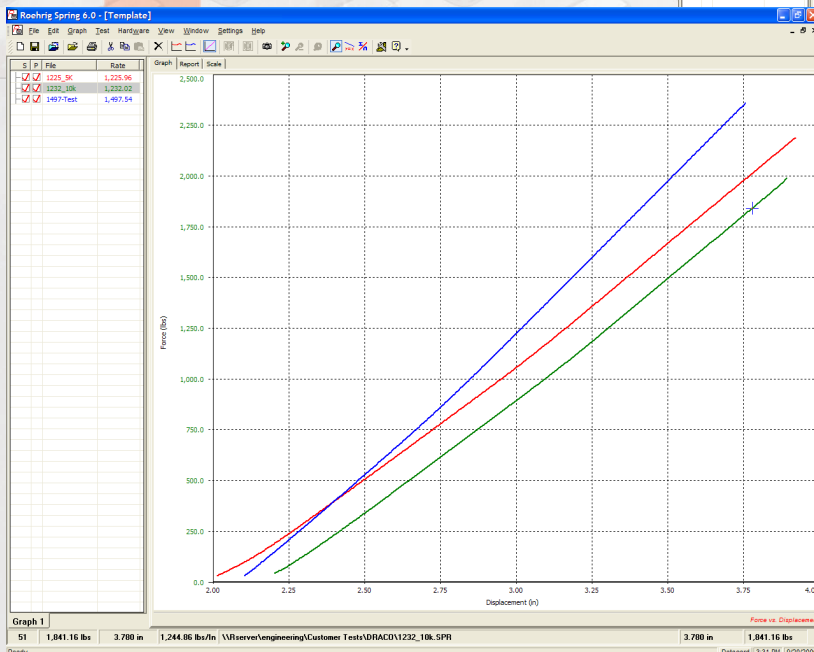


**Spring Rate vs. Force Graph
3 different springs**

**Spring Rate vs. Displacement
3 different springs**



**Force vs. Displacement Graph
3 different springs**



Torsion Bar Rater

STBR



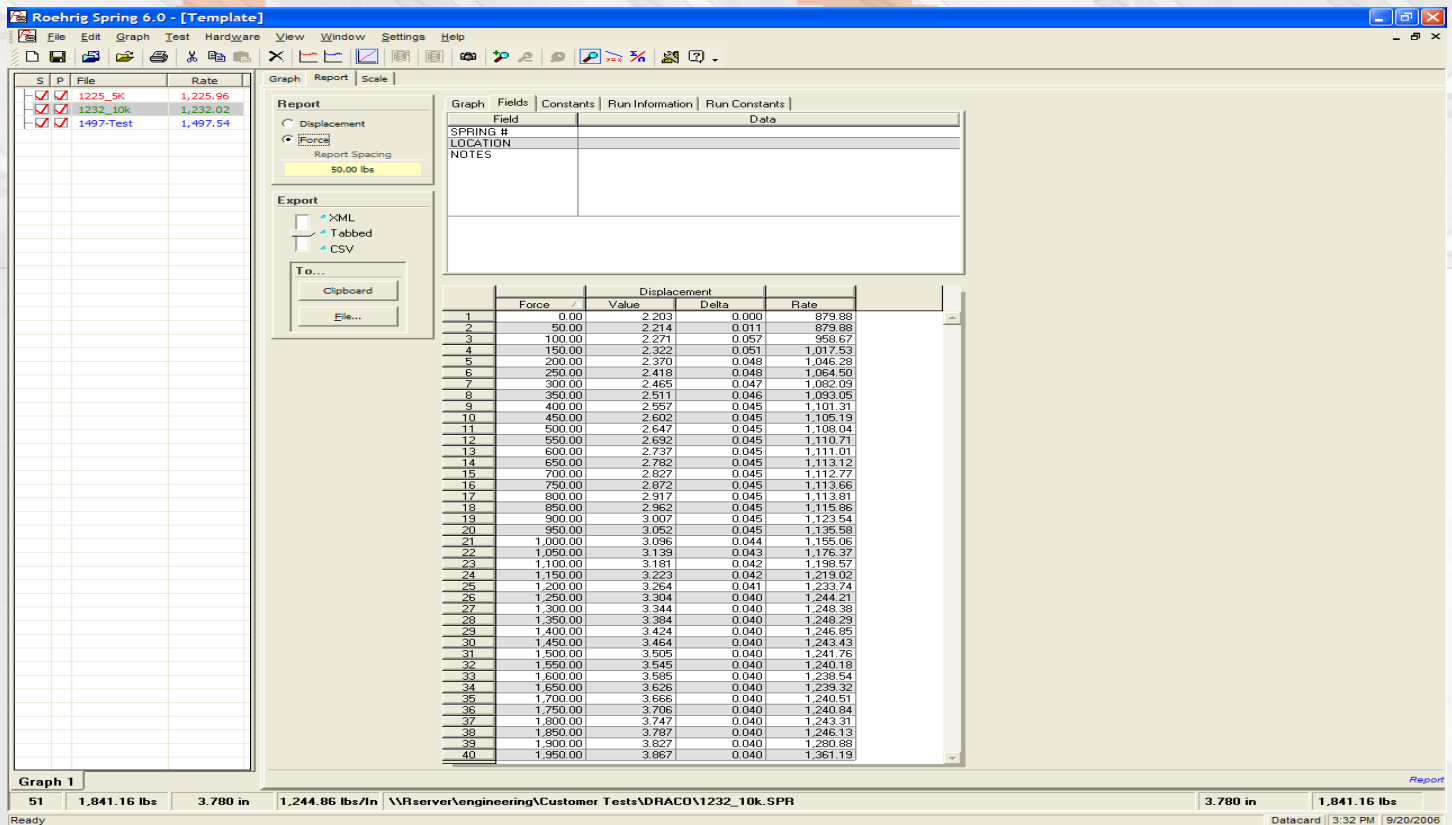
Standard Features for the Stand Alone Torsion Bar Rater

- 4500 FT/LBS load capacity
- 45 Degrees of rotation
- Adaptable up to 37.5" length torsion bar
- Quickly load and unload bars
- Overlay graphs to easily compare bars
- Includes Roehrig Engineering's Torsion Bar Rater software
- 1", 1.125", 1.250", 1.5" and 1.75" diameter bar ends
- Dynamic Graph and numeric data report over the entire test range

TORQUE VS ROTATION GRAPH



NUMERIC DATA EVERY .5 DEG.



Test Control & Damper Analysis Software

SHOCK6™

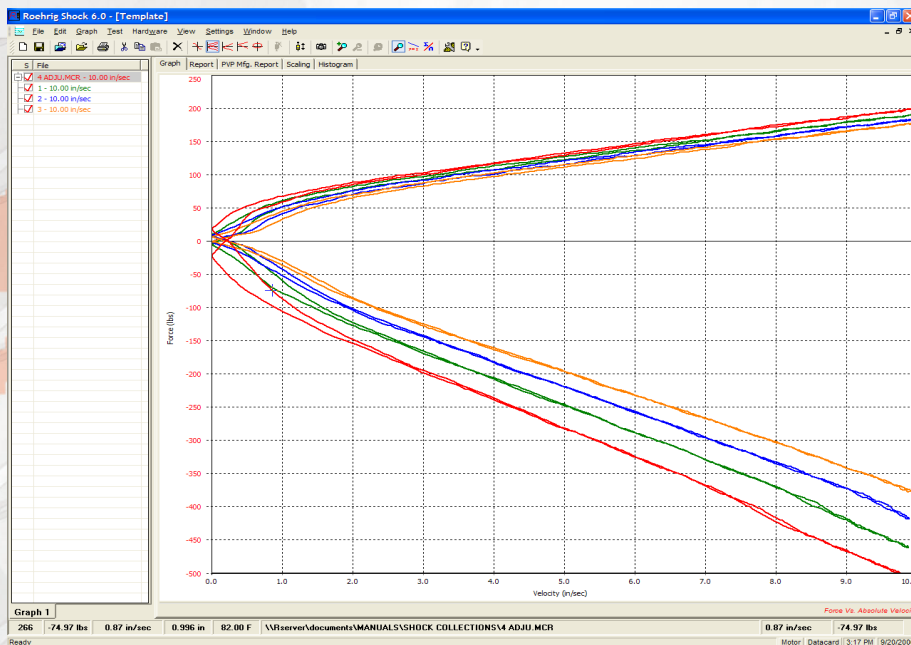
Roehrig Engineering damper dynamometers use the industry's most advanced fully Microsoft Windows compliant, full 32 bit software, **SHOCK6™**. All computer controlled Roehrig Engineering damper dynamometers use the **SHOCK6™ Test Control Software** to set up and control damper testing. **SHOCK6 Test Control** offers a choice of three different data collection and display methods, the Continuous Velocity Plot (**CVP**) and the Peak Velocity Pick-off (**PVP**) and the all new Multiple **CVP(MCVP)**. All Roehrig Engineering damper dynamometers use the **SHOCK6 Damper Analysis** portion of the software for the collection, analysis and display of test data.

The **CVP** method collects force, velocity, and displacement data continuously during a complete cycle of the damper, while the dynamometer is running at a constant motor speed. This data is stored and formatted by the **SHOCK6 Damper Analysis** software to produce a continuous plot of damper force versus displacement. All plots display the entire cycle of the collected data for each parameter including the four standard variations of damper force versus velocity plots.

The **PVP** method of collection consists of performing a number of **CVP** collections at predetermined dynamometer speeds. The **SHOCK6 Damper Analysis** software produces a **PVP** force versus velocity plot that uses only the peak velocity and corresponding forces recorded at each dynamometer speed. At each individual speed of a **PVP** collection, an option is available to collect and perform a **CVP** collection and analysis, if desired.

MCVP allows the user a new way to collect several settings on an adjustable shock under one collection. By running a selected speed several times, the user can change the adjuster on the shock as it pauses between each run. The user can define how many times to run depending on how many adjustments they have!

SHOCK6 Test Control offers many features unique to the industry. The most significant of these is the fully automated **Dynamic Gas Test**. This is a procedure used to separate the true damping forces generated by a damper from the force resulting from static pressurization of the gas chamber. This process requires the measurement of the load cell at the mid-stroke of the dynamometer on both the compression and rebound side of the stroke to determine the gas force. The seal drag of the damper can also be determined during this testing.



SHOCK6.0 data display screen

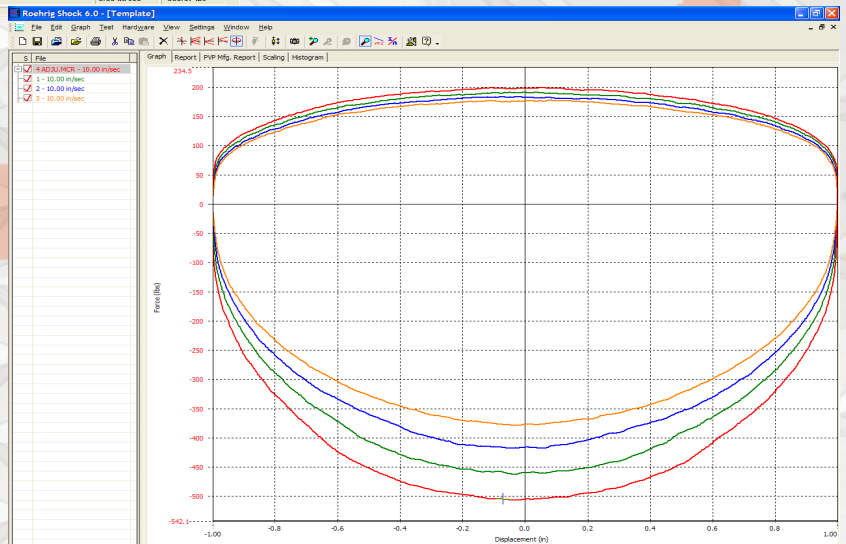
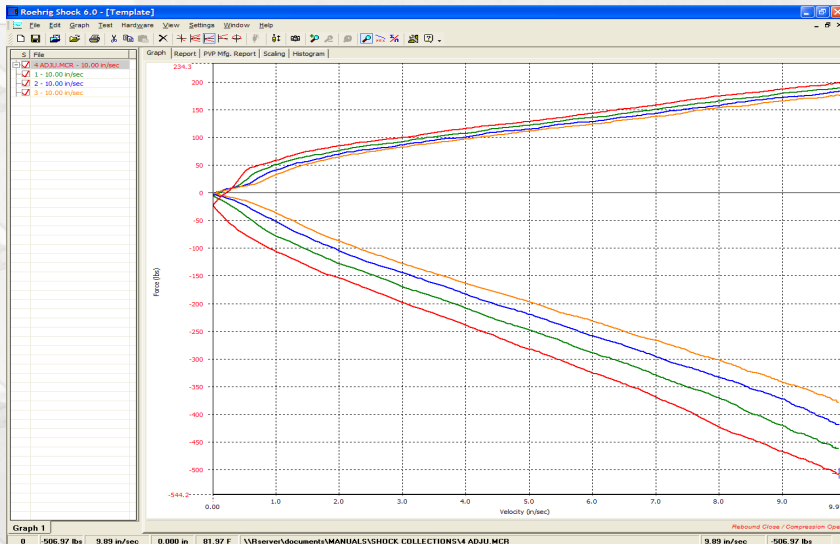
Test Control & Damper Analysis Software

SHOCK6™

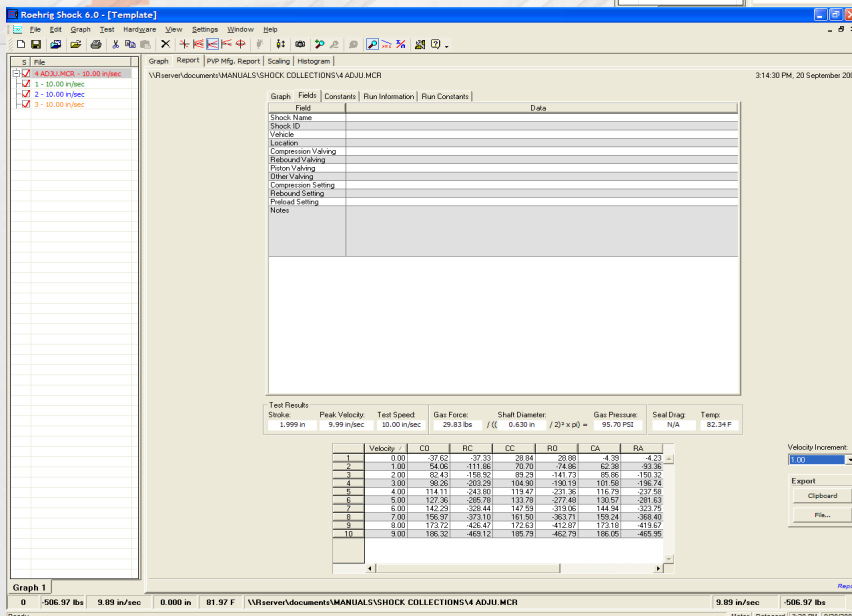
With the **SHOCK6™ Damper Analysis** software, damper test data can be presented in graphical or tabular formats. Tabular listings can be easily exported to all Windows- compatible spreadsheets. Data plots can be cut-and-pasted via the Windows Clipboard to use in word processing, presentation, or other software applications.

**Force vs. Velocity
(Comp Open/Rebound Closed)**

Sample plots and output from the SHOCK6™ Damper Analysis Software.



Force vs. Displacement Graph



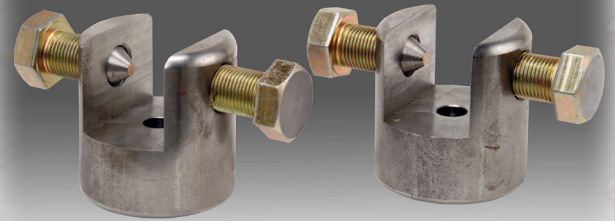
Report Page

Options

Standard Clevises:
 $\frac{1}{2}$ ", $\frac{5}{16}$ " and $\frac{3}{8}$ " Extra Wide



Universal Clevises:



C Clamp Clevises:



Add On Spring Rater:



IR Temperature Sensor:



100 Lexington Parkway

Lexington NC 27295

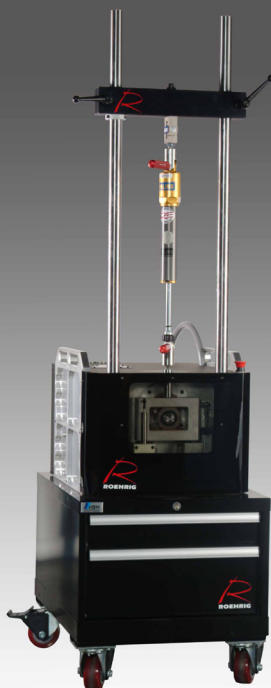
TAPE MEASURE COLUMN
Chrome and Hollow available



Lista Cabinets:

Single Drawer: \$725.00

Double Drawer: \$825.00



Other Options Include:

- 16 Channel Capability
- 4 Pressure Sensors and Harness
- Higher Velocities
- CE Cage
- Actuated Crossbar and Self Clamping